MAY 19 1917
UNIV. OF MICH. LIBRARY

Railway Age Gazette

FIRST HALF OF 1917—No. 20 SIXTY-SECOND YEAR

NEW YORK: Woolworth Building
CHICAGO: Transportation Building

NEW YORK—MAY 18, 1917—CHICAGO

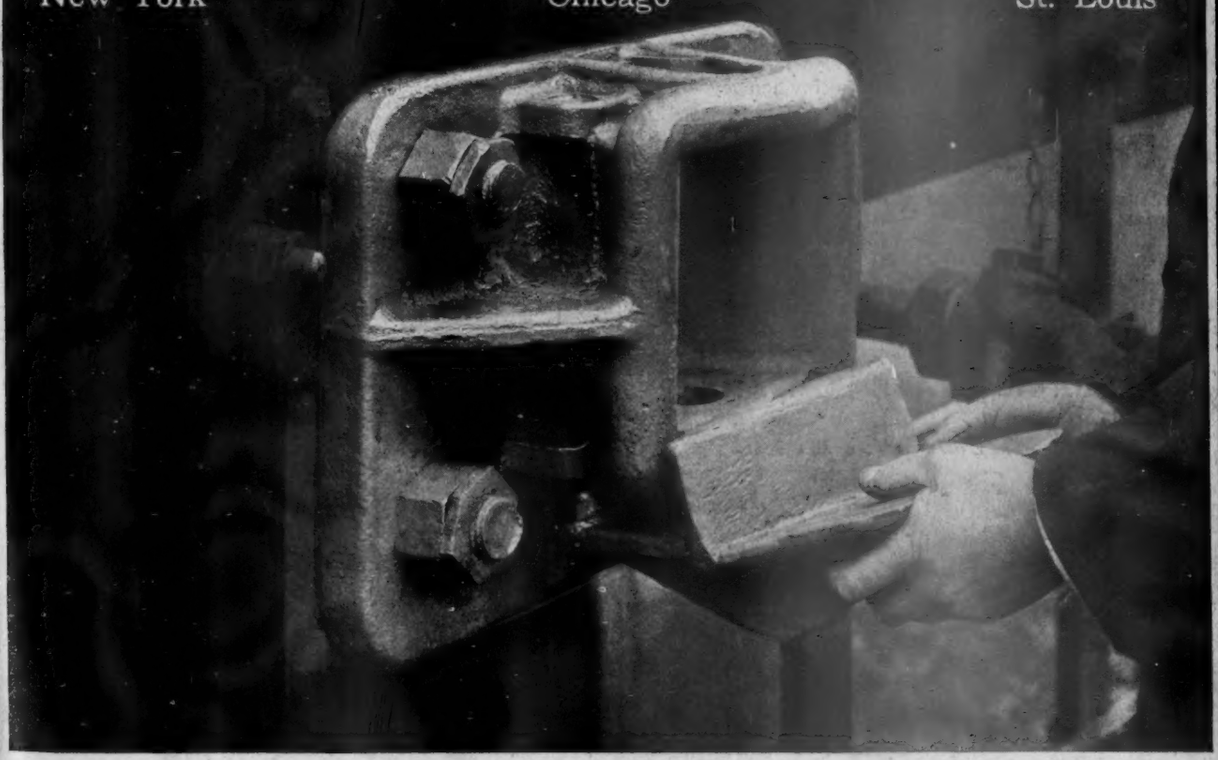
CLEVELAND: Citizens Building
WASHINGTON: Home Life Bldg.

Simplex Adjustable Coupler Pocket

Swing up the front end of the supporting shelf, lift it out and apply it to the opposite side—a simple operation which allows the Simplex pocket to be reversed to provide vertical coupler adjustment.

American Steel Foundries

New York Chicago St. Louis



Alphabetical Index to Advertisements, Page 5 Classified Directory of Advertisers, Page 6

CHASE GOAT BRAND PLUSHES AND CHASE IMITATION LEATHER

Quality standards are fixed and dependable

Several months ago a seat cover of Chase Plush was sent to us with the statement that it had been in continual service for twenty-four years

L. C. CHASE & CO.

89 Franklin Street, BOSTON. 326 W. Madison Street, CHICAGO. 321 Fourth Avenue, NEW YORK. 303 Majestic Bldg., DETROIT.

THERMOSTATIC CONTROL
PRESSURE VAPOR
GOLD SYSTEMS
COMBINATION ELECTRIC
HOT WATER—VENTILATION

IS YOUR HEATING MAINTENANCE CHARGE HIGH? WHY NOT APPLY A SYSTEM THAT WILL CUT THIS IN HALF?

Gold's Thermostatic Control System Saves 50% in Steam Consumption, Uses Less Pipe and Fittings—Positively Gives a Uniform Temperature.

Thermostatic Control Can Be Applied to Your Existing Systems.

GOLD CAR HEATING & LIGHTING CO., 17 Battery Pl., New York

RAILWAY UTILITY COMPANY

Sole Manufacturers

"Honeycomb" and "Round Jet" Ventilators for Monitor and Arch Roof Cars, and all classes of buildings; also **"Electric Thermometer Control"** of Car Temperatures.

721 W. FULTON ST. Chicago, Ill. *Write for Catalogue* 1328 BROADWAY New York, N. Y.

DICKINSON DEVICES

Cast Iron Smoke Jacks
Light Fire-Proof Smoke Jacks
Ventilators All Materials
Cast Iron Chimneys
Cast Iron Buildings
Telephone Booths

PAUL DICKINSON, Inc., 3354 South Artesian Ave., Chicago

SARCO MINERAL RUBBER ASPHALTS

SARCO No. 6 Waterproofing
SARCO Bituminous Putty
SARCO 5-M Paint
SARCO Refrigerator Compound
SARCO Mineral Rubber Floors
SARTAC-Damp-Proofing
SARCO R. S. A. Specifications
SARCO Roof Cement

SARCO PRODUCTS INSURE PURITY AND RELIABILITY
Promptness—Service—Efficiency

SARCO PETROLEUM PRODUCTS COMPANY
Formerly STANDARD ASPHALT AND RUBBER CO., and THE PETROLEUM PRODUCTS CO.
CHICAGO

Specify **BUCKEYE JACKS**

and be assured that you are getting the best jack in design, capacity and longevity that is manufactured

Send for Catalogue

BUCKEYE JACK MFG. CO. ALLIANCE OHIO

Obstructing the Arteries of the Nation's Life

The President urges the railways—the "arteries of the nation's life"—to see that the arteries suffer no obstruction of any kind, no inefficiency of slackened power. The use of

Peacock Hand Brakes

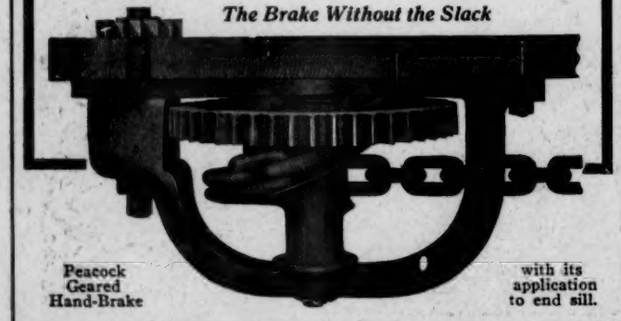
means fewer hump-yard collisions due to slow acting hand brakes—few obstructions of transportation facilities. The Peacock Hand Brake has a 12 to 48 ratio; stops and spots the car true; no fear of damaging collisions.

Put a few sets in service tests—let the Peacock Hand Brakes prove their superiority over ordinary hand brakes.

NATIONAL BRAKE COMPANY

888 Ellicott Square Buffalo, N. Y.

The Brake Without the Slack



Peacock Geared Hand-Brake with its application to end sill.

Better Observance of Signals Is Obtained By Using Cab Signals

As developed in connection with the Simmen System, cab signals are practical, reliable, low in first cost and maintenance cost, and adaptable to a variety of traffic conditions.

Simmen Automatic Railway Signal Co.

1575 Niagara Street
Buffalo, N. Y.

Write for our booklet "Progressive Signalling"

American Wire Rope

FOR elevators, dredges, lumbering, mining, oil-well drilling, suspension bridges, stump-pulling, cranes, derricks, ships' rigging and every other form of wire rope use.

Ask for illustrated catalogue

American Steel & Wire Company

Chicago New York Cleveland Pittsburgh Worcester Denver

Export Representative: U. S. Steel Products Co., New York

Pacific Coast Representative: U. S. Steel Products Co.
San Francisco Los Angeles Portland Seattle

Railway Age Gazette

Volume 62 May 18, 1917 No. 20

Table of Contents

EDITORIALS:

Editorial Notes 1029, 1030
The Government and the Railways in This War 1030
The Equipment Market 1031
*Illinois Central 1032, 1077

MISCELLANEOUS:

Government Ownership in Foreign Countries 1033
Lubrication of Freight Cars in Interchange; T. J. Burns 1039
*Semaphores for Highway Crossings 1040
*New Union Station Plans Completed for St. Paul 1041
National Fire Protection Association 1044
*Carriers Present Evidence in Rate Case 1045
*William H. Bremner 1050
Needless Brakeman Bill 1050
Washington Correspondence 1051
Railway Fuel Association Convention 1053
Report on Mount Union Collision 1056
Quarterly Accident Bulletin No. 61 1057
The Liberty Loan 1058
Convention of Railway Development Association 1059
A Tax of 10 Per Cent on Operating Revenues 1061
*Flash-Light Crossing Signal 1061
*Doing Her Bit 1062
A New Kind of Rail Trouble 1062
GENERAL NEWS SECTION 1064

* Illustrated.

Blocking the Game

One of the pleasant aspects of the grim activities of war is the patriotic fervor with which so many public officers rise to new levels of duty and independence. All of us, if we catch the right spirit, subjugate our petty selfishness in a way that does us good. But glaring exceptions still persist. Governor James E. Ferguson, of Texas, distinguishes himself at this time by proposing a "full crew" law—and two subservient legislative committees have approved it. Laurence B. Finn, chairman of the Kentucky State Railroad Commission, in a long statement concerning the railroads' proposed 15 per cent increase in freight rates—a statement filled with errors and deceptive half-truths—finds nothing more appropriate to say than that the government, borrowing money at 3 per cent, ought to provide the supplies that the railroads so sorely need. This he proposes in order to avoid allowing the railroads to replenish their funds by increasing their freight rates. He tells of their big receipts in 1916 and is utterly silent concerning their big losses in 1917. He says that the proposed increase will amount to a million dollars a day (in the United States, not in Kentucky) and forgets that expenses are going to increase more than that. Governor Martin G. Brumbaugh, of Pennsylvania, is in the same class with Governor Ferguson; not as a positive proposer of wasteful legislation, but as an obstacle to progress. It is his duty to secure the repeal of the Pennsylvania "full-crew" law; but at last account he stood like a rock in defense of the labor unions' right to have a law simply because they want it. There is still hope that reason may prevail in the legislature. In Texas there is a senator, Mr. Henderson, member of the Senate Committee, who is the exact opposite of the governor. In a vigorous minority report he shows up the absurdity of the full-crew proposition.

Fuel Economy and the Transportation Department

Never before have the railways been confronted with a situation such as is now presented by the rapidly increasing price of fuel. Although the fuel is consumed by the locomotive and its use is directly under the control of the fireman, those who control the movement of the locomotive can do much to conserve it. With the estimated increase in the cost of fuel amounting to over $100,000,000, every department in the railroad organization must co-operate in conserving it. The transportation department is in a position to help materially. Locomotives should not be called for their trains too far in advance of the time of departure. When the trains are once on the road, the despatcher should do all in his power to keep them moving and eliminate as many stops as possible. Locomotives should not be overloaded, as both the efficiency of the locomotive and of the service will be sacrificed. A careful determination should be made of the most economical speed at which to operate the trains; fuel, of course, being only one of the factors involved. Some roads have been able to operate successfully with locomotives assigned to regular crews and have found a material saving in fuel as compared to the pooled system; also better service has been obtained from the locomotives. This is due primarily to the fact that the engine crews take a more direct interest in the condition of the locomotives and are more careful about reporting defects. Those roads which operate exclusively on the pooled system can only obtain as good results by thorough terminal inspections and more careful instruction and supervision of the engine crews in the economical use of fuel. In the make-up of way freights, care should be taken to group the cars so that they may be removed from the train with the least amount of switching and effort by the road engine. These are some of the more important things to be carefully considered, but are only a few of the items which should be watched in the interest not only of fuel economy, but of more efficient operation.

A Misleading Comparison of Earnings

The New York Tribune, in its usually carefully written Finance and Economics columns, in commenting on the railroads' rate case in its issue of May 15, makes the following statement:

> Meanwhile March reports of the earnings of the 100 largest railroads in the country show that the operating income of 44 of them was larger than in March, 1916, * * * *

Stated in this way, this is an unweighted average that is entirely misleading. There are 115 roads over 300 miles in length which have reported their March earnings to the Interstate Commerce Commission. Sixty of these roads show decreases in operating income in March, 1917, as compared with March, 1916, and 55 show increases. In other words, for the entire 115 the proportion showing increases is about the same as for the Tribune's 100, but the 60 roads showing decreases operate a total of 128,000 miles,

in round numbers, and the 55 roads showing increases operate less than 87,000 miles of line. Instead of nearly as much railroad showing increases as showing decreases, about 59 per cent more railroad mileage shows decreases than increases; and the amounts of increases and decreases are even further from what the Tribune's statement would suggest than is the mileage. The sum of all the increases amounts to $5,186,000 and the sum of all the decreases amounts to $13,616,000. It is true that against the March expenses of some of the roads are charged the full three months' increases in trainmen's wages under the agreed settlement of the Adamson law and therefore if April and the other months of the calendar year 1917 were no worse in comparison with corresponding months of 1916 than was March, 1917, the actual difference for the calendar year would not be as great as indicated by the March figures; but the facts are that with certain exceptions in the case of a few roads, April, 1917, compared less favorably actually with the previous April than did March, 1917, with the previous March. The Tribune's discussion of the rate case was in connection with a discussion of the current prices of railroad companies' stocks, the argument being that they were selling probably below their intrinsic value. This is very doubtful. From a general study of present railroad conditions, it would appear far more likely that even now the great majority of railroad stocks are selling on a basis of the rate increase being granted in full. It is true that there are a few exceptions to this statement, but they are the exceptions which prove the rule, and so far from having discounted an adverse decision of the Interstate Commerce Commission, it would appear much more likely that even present low prices discount a favorable decision.

Report on Mount Union Collision

The report on the Mount Union collision of February 27 last, which has just been issued by the Interstate Commerce Commission, fills 21 pages, and contains a few details not given in our report published March 9. These are noted in another column of this issue. The government inspector's explanation of the puzzle of Engineman Cook's fatal error is that the signal light was green but that he was expecting to find it white and he "observed what he was expecting to see." As we know of no law of psychic science which will afford any better explanation, this will have to be accepted. The inspector's first recommendation is that the railroad's flagging rule, which consists of only five lines, be amplified, for greater safety; but he makes no reference to the fact that the foremost railway officers have been trying faithfully for 30 years to make this supposed improvement, and have not been able to agree on anything, or to feel much satisfaction in the most detailed rules that have been tried. For the flagman to depend on a semaphore to stop a train—even when he knows that the semaphore indicates STOP—is declared to be a dangerous practice; though it is a fact, we believe, that on one prominent road this practice is permitted by rule (not by silent acquiescence, as the report intimates). The concluding recommendation is for the general use of automatic train stops. This is not new. It is commendable as definitely recognizing that no stop apparatus can be acceptable until it is tested, in exacting service, by the railroads; the responsibility is on the roads, not on the government. The report is like the latest deliverances of the British Board of Trade, in treating this point in the most general and superficial way, ignoring its enormous difficulties. The British inspectors, at the present time, excuse themselves for deferring the problem because of the stress of war conditions. Possibly that argument may be as sound in this country as in England; but in either country, Mount Union disasters are likely to be as frequent in war times as in peace, unless the speeds of trains are greatly reduced.

THE GOVERNMENT AND THE RAILWAYS IN THIS WAR

THE public and public officials are looking squarely in the face the facts as to the general situation produced by the entrance of the United States into the great war. They are raising money and men on a scale heretofore undreamed of to enable this country to play its part in the terrible conflict.

The railways of the United States will have during the war a vitally important function to perform. Will not the public and its representatives face the facts regarding the railway situation as intelligently and resolutely as they are confronting the truth regarding the general situation?

The conditions which have developed in the railway field and their causes may be briefly outlined. The year immediately preceding and the one immediately following the commencement of the conflict in Europe were financially the two worst in the history of our railways since the panic days of the '90s. During those two years it was necessary to curtail expenditures for maintenance, improvements and additions almost as much as was physically possible. Then came suddenly and without warning a little more than a year of feverish and largely artificial prosperity. The total traffic and earnings increased abnormally. It was impossible to get enough materials, supplies and labor for adequate maintenance, and in consequence the *nominal* net return earned in the fiscal year ended on June 30, 1916, surpassed all records. Then, suddenly, before it was practicable to make up any deferred maintenance, there began a series of unexampled advances in prices and wages. In consequence, increases in taxes and expenses of operation speedily caught up with and passed on most roads the previous increases in earnings. Expenses and taxes still are increasing faster on practically all roads than earnings, and with present freight and passenger rates the net operating income of the railways as a whole would soon be down to and even lower than it was in 1914 and 1915. The evidence introduced last week in Washington by witnesses for the railways showed that a general increase of 15 per cent in freight rates would be much less than sufficient on most roads to offset increases in wages, prices and taxes which already have occurred.

The facilities of the railways had proved inadequate to the demands made upon them before this country entered the war. This was not because the railways were not able to handle an increased traffic. On the contrary, in the fiscal year ended on June 30, 1916, they handled forty-two billion ton miles of freight traffic more than they did in the fiscal year 1913, which was the record year before that, and in the calendar year ended December 31, 1916, they made another record by handling approximately twenty-three billion ton miles of freight traffic more than they did in the fiscal year 1916. And the total traffic moved has continued to increase. The reason why there is at present a record-breaking car shortage is that there is still a record-breaking business. The freight traffic moved in January and February, the latest months for which figures are available, surpassed all previous movements in those months. There is a shortage of transportation facilities, not because the railways are not being efficiently operated, but because there is so much more business to handle than ever before.

The entrance of this country into the war probably will cause a still further increase in the traffic. It will, besides, have an effect to which little consideration has been given. It will make it necessary for the railways to give priority to the movement of government traffic. But it is impossible to give priority to a large volume of traffic of any kind without interfering seriously with the movement of all other traffic. The tendency, therefore, of the addition of this government business will be not only to increase the amount of service which the railways will have to render, but to interfere with the most efficient practicable use of the facilities left for the handling of ordinary business.

The managers of the railways are fully alive to the situation. They realize that the future of our transportation lines will be largely determined by how they "do their bit" in this national crisis. They have not waited for the government to tell them their duty and indicate how they should do it. With an intelligence, foresight and patriotism which deserve all praise they have voluntarily formed an organization for operating all of the roads as a single system in order that, largely regardless of the interests of individual lines, they may so utilize all the available facilities as to give to the government and to the traveling and shipping public during this crisis the best and most adequate service possible. By carrying out the plan on which they have entered they will not only increase the capacity of the roads as a whole, but they will also, it is anticipated, effect economies which will offset some of the increases in expenses which have been and will be forced upon them.

It is not conceivable, however, in view of the enormous increases in wages, prices and taxes which have occurred, and are still going on, that the managements, by even the most efficient methods, can anywhere near maintain operating income without government aid during the emergency. Government aid may be given, as it has been given to the English railways, in the form of a guarantee of the net return earned before the war. It may be given in the form in which it has been asked by our railways, namely, that of an increase in rates. Just how long this assistance will be needed or how large it ought to be are yet to be determined. But one thing may be stated with certitude. That is, that unless the government and the public give the railways the assistance they need to carry them through the present emergency, the roads will not be able to render the service the government and public will need to carry *them* through this emergency.

The main question involved is not one as to the rights or interests of the railways. The great matter involved is the welfare of the American public. The people of the United States can no more afford to refuse to the railways the earnings they require to enable them to handle the government's and the country's business than they can afford to refuse to the army or the navy the appropriations required to enable them to carry on effectively their operations. The railways voluntarily have organized to "do their bit." Will the government deny, or will it provide them with the means necessary to enable them to do it?

THE EQUIPMENT MARKET

SINCE the first of the year the railways of the United States and Canada have ordered 1,472 locomotives and 29,796 freight cars, as compared with 1,411 locomotives and 48,551 freight cars for the same period last year. The foreign orders in the same period this year have totaled 533 locomotives and 14,550 freight cars, as against 613 locomotives and 15,325 freight cars in the first four and one-half months of 1916.

To forecast what lies ahead for the equipment market would be as fruitless under present conditions as it is impossible. There are certain elements, however, that are significant. The first is that the railways need equipment and need it very badly, both cars and locomotives.

At the present time, the locomotive builders are tied up with orders well into and possibly beyond the first quarter of 1918. Despite this fact and the uncertainties of the present situation, orders still continue to be placed in large quantities. The locomotives reported in the first two weeks of May totaled no less than 253—174 for domestic use and 79 for export. The indications are that these orders will continue, but, of course, it will be realized that in bordering on prophecy one is treading on dangerous ground. Many roads, which otherwise would not come into the market for locomotives for next year's delivery until August or September are already considering the placing of large orders, and yet some of these very roads now have large numbers of locomotives still awaiting completion. The situation from the standpoint of the American railway man is complicated by the possibilities of additional foreign orders. American railway men realize that every locomotive ordered for export delays the delivery of their own badly needed power, but it is to their credit that they are not protesting against the assistance that the equipment builders have been giving our Allies with respect to foreign business.

Among the orders that have been placed recently by foreign governments is the one reported only last week for 50 Mikado locomotives from the Paris-Orleans Railway of France. That railway, incidentally, has also 50 of the same kind of locomotives already on order for delivery in November this year. The Russian Government has recently ordered 128 additional locomotives and according to report is hopeful soon of being able to come into the American market for possibly 1,000 more. There is apparently no reason why foreign business should not continue and there is every possibility that American locomotive builders before many months have passed may also be building small narrow-gage locomotives for the supplying of American regiments behind the lines in France. Rather pertinent hints are flying about as to our sending locomotives from the American railroads. If this is done the American railroads will certainly be hard pressed for motive power, and the situation will not be helped by the necessity of moving troops and supplies to concentration camps or to the seaports. In short, there seems to be every reason to suppose that the locomotive market will continue as busy as it has been.

This shortage of power is also going to have its effect in other ways, particularly as to the installation of modern devices on old equipment. If the necessities of the war demand the exportation of many locomotives overseas, we may even see the equipment builders confining themselves in a larger measure to the building of locomotives for use in France or Russia. Should it work out this way, American railways will be compelled to utilize their present power to the best advantage by installing every available device for increasing locomotive capacity and efficiency.

The freight car situation leaves room for a big guess. At the present time the purchasing of cars is not as lively as conditions might seem to warrant. Deliveries on cars are almost normal, but because of the uncertainties of the present situation, the builders are apparently not diligently seeking orders for delivery many months ahead. There can be little doubt, in this connection, that railway men believe that the car shortage has been rather a matter of congestion than of actual lack of cars. The car builders at the present time are not particularly busy, partly because of the circumstances mentioned above and partly because the high prices have deterred many roads from buying and have led others to build all-wood or steel underframe cars in their own shops. There is every reason, here as with the locomotives, to look forward with optimism.

The railways need cars; they are going to need them in greater degree (if that is possible) as they begin to move troops and as they are called upon to move freight in greater quantity to the seaports to load the ships that America will soon be placing on the seas to counteract the effects of the submarine campaign. There should also be additional foreign orders; the Russian Government is reported in cable despatches as contemplating the purchase of 40,000 cars. That figure sounds large, but bids are already being asked on 3,000 small four-wheel cars. American car builders, like the locomotive builders, may also be called upon to build cars for the use of our own country's forces overseas, and there are also intimations that American railways may be called upon to furnish cars for France and Russia. In short, the demand for cars is very evident and should continue so.

The question of steel supply is becoming more of a

leading question every day. Many statements are being made as to the priority of steel manufacture for munitions and ships. The statement is made that the amount of steel required for merchant ships has increased 300 per cent in the last four months as compared with the first four months of last year, but that the tonnage required for railroad use has decreased 40 per cent. This has an ominous look, but in no case has it come to our attention that the required priority of steel for munitions and shipping will actually cause the diversion of this material from cars and locomotives. The country's authorities evidently realize that efficient railroad transportation is just as necessary as an ample supply of war munitions or ships.

ILLINOIS CENTRAL

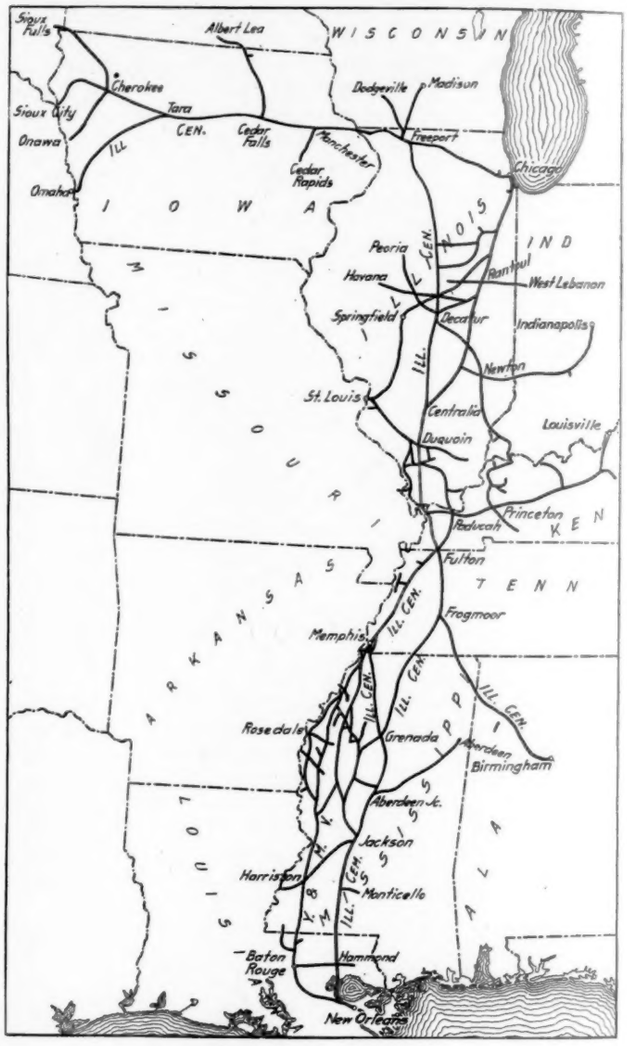
NOT since 1907 has the Illinois Central made as good a showing as it did in the calendar year ended December 31, 1916. Even in 1911 with prices much lower than they are now, the operating ratio was higher than that of 1916. In 1916, with an increase of 16 per cent in operating revenues, there was an increase of only 5 per cent in transportation expenses, and interesting enough, the only direct cause contributing to this remarkable success in holding down transportation expenses, which President Markham mentions in his report, is additional benefits secured from the use of superheater locomotives of greater tractive effort. It goes without saying that there were other contributory factors, but it shows how important this one factor was that President Markham should single it out for special mention.

If the Illinois Central revenues were to continue at the present rate and expenses could be held down as they were in 1916, the company would soon be in an enviably sound financial position. Operating revenues in 1916 amounted to $73,740,000, an increase of $9,936,000 over 1915. Operating expenses amounted to $52,843,000, an increase of $3,823,000 over 1915 and net income available for dividends amounted to $15,707,000, an increase of $7,954,000. The present rate of dividends, 6 per cent, calls for only $6,558,000, or very considerably less than half the amount available for dividends. With an average ton-mile rate of only 5.40 mills in 1916 compared with 5.52 mills in 1915, the ratio of operating expenses to revenues was 71.66 in 1916 as against 76.83 in 1915. The Illinois Central main lines consist of a double track line from Chicago to New Orleans and a single track line from Chicago to Omaha. There is quite a bit of branch line mileage on which traffic density is light, but the average ton mileage of revenue freight per mile of road in 1916 was 1,921,000 and the average number of revenue passengers carried one mile per mile of road was 153,000. This indicates a heavy traffic density for the main lines and the holding down of transportation expenses is strong evidence that the road was kept free from bad congestion.

The steadiness of the progress made in heavier train loading and the extent of this progress since 1911 on the Illinois Central has been really quite remarkable. In 1912 the average freight train load, including both revenue and company freight, was 460 tons; in 1913, 491 tons; in 1914, 497 tons; in 1915, 562 tons, and in 1916, 624 tons. The gain of 62 tons in the average train load last year as compared with the year before was accompanied by an increase in helping and light freight locomotive mileage of 12 per cent, the total being 401,000 miles in 1916 and the total revenue freight train miles 16,386,000. A smaller proportion of empty car mileage was one factor in increasing the train load, the average number of all freight cars per train-mile being 37.92 in 1916 and 36.01 in 1915, an increase of 5.30 per cent, while the average number of loaded cars per train was 25.92 in 1916 and 23.52 in 1915, an increase of 10.20 per cent, and the average number of empty cars per train was 11.01 in 1916 and 11.51 in 1915, a decrease of 4.34 per cent. It will be noted how well balanced, compared to many other roads, the Illinois Central's freight traffic is, and this is one of the things contributing to the large earning power of the property, even with its low ton-mile rate.

The additions to equipment during the past six months* consisted of the addition of 20 Pacific type passenger locomotives, 52 passenger train cars and 300 freight cars.

The balance sheet reflects the good financial condition in



The Illinois Central

which the company finds itself. There were $7,633,000 cash on hand at the end of 1916, no loans and bills payable and $2,872,000 miscellaneous accounts payable. No bonds were issued during the six months and funded debt outstanding was decreased by $769,000.

The following table shows the principal figures for operation for the calendar years 1916 and 1915:

	1916.	1915.
Average mileage operated	4,767	4,767
Freight revenue	$53,325,517	$45,992,468
Passenger revenue	14,435,404	12,864,701
Total operating revenue	73,740,266	63,804,079
Maintenance of way and structures	9,921,656	9,491,071
Maintenance of equipment	16,980,995	14,970,410
Traffic expenses	1,303,244	1,232,749
Transportation expenses	22,553,004	21,446,632
General expenses	1,848,339	1,713,795
Total operating expenses	52,843,149	49,019,942
Taxes	4,116,065	3,268,938
Operating income	16,759,239	11,492,233
Gross income	28,016,150	19,788,605
Net income	15,868,283	7,909,940
Appropriation	160,790	156,053
Dividends	6,557,760	5,464,800
Surplus	9,149,733	2,289,087

* The Illinois Central has changed its accounting year to correspond to the calendar year.

Government Ownership in Foreign Countries

W. M. Acworth, English Authority, Before Congressional Committee, Outlines Experiences of State Railways

A SPECIAL hearing of the Newlands joint Congressional Committee on Interstate Commerce, which is investigating subjects pertaining to railway regulation and control, was held at Washington on Monday for the purpose of hearing a discussion on government ownership by W. M Acworth, who has been in America for some time as a member of the royal commission appointed to report on the railway situation in Canada, and who is about to return to England. Mr. Acworth gave a historical sketch of the experience of the principal countries that own or operate railways and their reasons for acquiring the lines. He said that it was probably safe to make the broad statement that two-thirds of the railway mileage of the world has been built; two-thirds of the railway capital of the world has been provided; and two-thirds of the current railway work of the world is done by private enterprise; and only the remaining third by national undertakings.

He then proceeded to a discussion of the lessons to be derived from foreign experience and their application to the situation in the United States and the United Kingdom, of which the following is an abstract:

The Lessons of Foreign Experience

Such is an outline history of the introduction of state ownership in the less important half of the railway world. What lessons has it to teach for the more important half, the United States and the United Kingdom? Evidently, in these two countries it will not be suggested that state ownership is necessary for political and military reasons. The consciousness of political unity needs here no artificial stimulus. The experience of England since the present war began has sufficiently demonstrated that a number of independent and often competing private companies can be welded together at a moment's notice into a homogeneous system, and operated from the moment when war is declared, with absolute success as an organic whole, under public control, on public account, for the public service.

Nor will it be suggested that in these two countries private enterprise has fallen short of meeting the public requirements. On the contrary, that England is adequately provided is admitted on all hands. And if, as is doubtless the case, the United States still need, and will continue to need, fresh railways built, past experience, which shows that in no other countries have railways been pushed so boldly in advance of population as in the states, gives every reason to suppose that private enterprise will be able and and willing to provide them. And it may be added that the country which comes next in this respect to the United States—far in advance of the English colonies of Australasia, with their exclusively state systems, and of Russia or India, with their immixture of state ownership—is Argentina, also a country wholly developed, till quite recently, by private companies.

Railway history conclusively refutes the idea that state ownership promotes railway development. If we consider countries where the railways are already making a reasonable return on the capital, what do we find? Belgium has notoriously failed to keep its railways abreast of its rapidly growing trade. The Prussian government has consistently for a generation past forced the enormous coal and iron traffic of Lorraine, Luxemburg and Westphalia on to the waterways, by refusing to build the new lines necessary to cope with the traffic by land. American shippers sometimes complain of shortage of equipment. But these complaints in times of worst congestion are not more bitter than those which go up regularly every autumn from the coal operators of the Ruhr Revier, the most important coal field in Prussia. In Australia the managements of the government railways have boldly defended themselves in times of bad congestion by claiming that the railways cannot afford to keep sufficient equipment to cope with maximum demand. In the great Empire of India, with a teeming population of 315,000,000 spread over an area nearly two-thirds that of the United States, a population which though very poor is also very industrious, there are only some 36,000 miles of railway. That more railways and improvements of existing railways are urgently needed, is admitted on all hands. Nor is it denied that they would pay their way. But the government refuses to allow private capital a free hand. A private company may build branches as feeders of the existing trunk lines on strictly regulated terms. But that is all. And yet the government itself can only find a few million pounds per annum for a work in which scores of millions could be profitably employed. The Dominion of South Africa, with a white population of a million and a quarter, has a state railway system of some 8,000 miles. In the much newer territory of Rhodesia alongside, company enterprise has already provided 2,000 miles of railway for the service of a white population of 32,000.

The reason is obvious. A railway company exists for a single end. If an extension offers reasonable prospect of financial success, and if capital can be raised on reasonable terms, a company will always build it. Even if success is problematical, ambition and the desire to forestall a possible intruder will usually turn the scale in favor of a forward policy. But a finance minister is in quite a different position. Calls upon him for money come in from a dozen different directions. The army, the navy, education, irrigation schemes, social betterment and fifty things more, all press their rival claims. The money is limited. New taxes do not conduce to popularity. The budget has to be made to balance and the railways go short like all the other claimants.

The experience of the last few years in the United States has, it must be admitted, shown that, under present conditions, private capital is not being found in sufficient quantity for extensions and improvements which are urgently necessary. And it has been argued therefore that the state will be compelled to come to the rescue by taking over the private undertakings bodily. But this is scarcely practical politics. To suppose that serious statesmen would, for this reason only, decide on a step so serious as railway nationalization, is to suppose the impossible. Taking over a quarter of a million miles of railway, with $16,000,000,000 net capital and over 1,800,000 employes, may be a good thing or a bad thing; but it is undoubtedly a step, the seriousness of which can hardly be exaggerated. To compare it in importance with the alternative of allowing the existing companies to raise their rates by an average of a mill per ton-mile, which would make all the difference between poverty and affluence would be almost farcical.

The argument for state ownership in the United States or the United Kingdom can therefore be based only on the claim that the substitution of Government for private ownership of the existing lines would, on the whole, secure better public service. A distinguished English authority, Sir George Gibb, has, in fact, put the question precisely on these lines. He has contended that, in Anglo-Saxon countries at least, it was entirely right that the construction and development of

the railway system should be left to private enterprise. Private enterprise is, he thinks, bolder; companies are more flexible, more ready to take risks and to try experiments in new methods, than any state organization could be. Moreover—and the importance of the point will not be lost on anyone who remembers that the bulk of the American railways have at one time or other passed through a receiver's hands, and that some 40 per cent of their share capital receives no dividend—if a company improvidently or unwisely invests its capital in a non-paying proposition, while private individuals lose their money, the public is uninjured. Capital borrowed on credit of the state is a permanent burden on the country as a whole, whether or no it earns any net revenue to pay the interest. On the other hand once the system is created and substantially finished, Sir George Gibb, in the paper referred to, considered it an open question whether state or private ownership and management should be preferred.

Cost of Raising Capital

It is this question therefore that we have now to consider. It is commonly claimed, as one of the advantages on the side of the state, that it can raise capital more cheaply than any private company. And the claim is not without substance. But the advantage is not great. The market value of United States bonds cannot be compared with that of first class railway mortgage bonds, because of the fictitious value attached to the former for bankers' purposes. But in England over a series of years—though here, too, consols have to some extent had an artificial value—*the interest on first class railway debentures has averaged, perhaps, half of* 1 *per cent above the interest obtainable on government obligations.* At the moment of writing, while the English government is borrowing on short term bonds at the rate of 6 per cent, first class railway debentures are still selling on the basis of less than 5 per cent yield. And it is only the first charge securities of railway companies which can fairly be compared with the government stocks; for the income return on junior securities, more especially common stock, includes a more or less considerable allowance for insurance against risk. Averaging the return on all capital invested in a successful private company, it would undoubtedly be considerably higher than the return paid to the purchasers of an equal amount of government railway stock. But the government stock would unquestionably include a considerable amount of capital spent on railways not producing any, or only an inadequate, income, which capital, as has already been said, would have been in the case of a private company, either written down in market valuation, or, it may be written off entirely.

Economy in Use of Capital

Further, though a saving of perhaps half of 1 per cent in interest is not unimportant when the capital is reckoned in billions of dollars, it may be more than compensated for by a greater proportional increase in the capital itself. Is this likely to be the case? It is certainly the common belief of 99 business men out of a hundred, both in America and in England, that the government gets less value for its money than a private trader. So far as it is possible to compare one country as a whole with another, it certainly looks as if this belief were justified in railway experience. The railroads of the United States were capitalized in 1915 (deducting inter-corporate ownership) at $66,447 per mile. The state railroads of New South Wales and Victoria were capitalized at $77,253 and $65,774 per mile respectively. It must be admitted that the Australian roads, whose construction engineers had been brought up to regard English standards as universally applicable, are more substantially and expensively built than many of the Western roads of the United States. On the other hand, the American figure includes the trunk-line railroads of the East, with a standard of construction and a mass of equipment to which the Australian roads can offer no analogy. On the whole, it is safe to say two things. If an experienced railway man came to America for the first time, and made an exhaustive examination of the United States railroads, he would marvel when told that so magnificant a machine had been built up at a capital cost of only $66,447 per mile. If an English or an American business man, fortified by the expert's opinion, were asked whether he thought his own government could have carried out the work as cheaply, it is equally certain what his answer would be. Summing up then the subject of capital cost, it would appear that, whereas on the one hand the state can obtain its capital somewhat cheaper, on the other hand private enterprise makes each dollar of capital go further. And the advantage and the disadvantage may fairly be set off, the one against the other.

Quality and Cost of Service

The vital question, however, is not concerned with construction and capital cost, but with the day-to-day working of the actual existing system. Will the public on the whole get better services or lower rates, or possibly both these advantages? On this question there is a mass of accumulated information that may help to an answer. But the difficulty of making a fair comparison between one country and another is exceedingly great. National customs differ widely. To give one striking instance. The average American railway charges its passengers two cents a mile, and admittedly makes no profit. The East Indian Railway charges four mills, and makes a handsome profit, because the Bengali ryot is content to travel under conditions of speed and accommodation and convenient frequency of service which imply reductions in operating costs more than counterbalancing the five-fold reduction of charge. And even the four mills rate is a much larger tax on the income of the ryot than the two-cent rate is upon that of the American laborer. What shall be said? Would it be reasonable to say that, all things considered, the passenger fares in America are really lower than those in Bengal, in spite of the fact that in Bengal a man can travel five miles at the price of one mile in the states? Must it not be acknowledged that, where conditions are absolutely different, one cannot really compare, but can only contrast?

If comparisons are to be of value, they must be made where conditions are, if not similar—that we shall never find—at least as similar as may be. This much seems clear. Given two countries in which the standard of living and the purchasing power of money are substantially the same, and where the quality of railway service is substantially the same also, the country in which the rates charged are the lower is the country best served by its railways. If a country, where the purchasing power of money is low, obtains the same quality of service at a substantially lower rate than is charged in countries where the purchasing power of money is high, where, in other words, ordinary commodities are cheap, then surely that country has an exceptionally efficient railway service. Tried by this test, how does the United States stand?

It is a matter of common knowledge that the freight rates of the United States are out and away lower than those of any country with which comparison can reasonably be made. The figures of the average receipts per ton-mile for Germany and France are nearly double those for America, 1.37 and 1.30 cents per ton-mile respectively as against 0.738 cents. And all the other countries of Western Europe, except Belgium, are higher than France. The Belgian rate is 1.13 cents. As we get towards the east, rates fall. In Russia, the average is 0.94, in Japan 0.87, and finally in India, it gets down to 0.74 cents, which is practically the same as the American figure.

The reason why Oriental rates are low is obvious. Roughly half the cost of railway operation is direct labor cost. And in Japan a railway employee earns a dime, and in India a nickel, where in America he earns a dollar. Why then are not the rates still lower? Because it needs many Orientals to do the work of one American, with his efficient methods and his labor-saving appliances. To give one instance, railway embankments in India were till quite recently, and probably are still, constructed by gangs of coolies running to and fro with small baskets of earth upon their heads.

But let us leave India aside. Once more it is a contrast and not a comparison. Confining ourselves to Europe, we may say broadly that it costs as much to move a ton one mile in Europe as to move it two miles in America. And when all allowances have been made for circumstances tending to make European business more expensive to handle—short hauls, more diversified loads, higher cost of coal, and so forth—the 100 per cent. difference in rate is so great, that it seems impossible to doubt that a large part of it must be due to the greater efficiency of the American railway.

Private Railways Lead in Invention and Improvements

While the American companies have boldly revolutionized their machinery and methods of carriage, the Prussian state has clung to old machinery and old methods. The huge engines and freight cars used in America today could never have run on the rails or crossed the bridges as they existed in 1880. So the American companies have laid ever heavier and heavier rails, and have rebuilt their bridges, often more than once. The Prussian State is content to put forward, as a sufficient reason for adhering to the old methods, the fact that track and bridges are not strong enough to carry the heavier equipment. This example is typical. In all the history of railway development, it has been the private companies that have led the way; the state systems that have brought up the rear. It would be difficult to point to a single important invention or improvement, the introduction of which the world owes to a state railway.* England shares with America the credit of having invented the locomotive. England first rolled steel rails, but America was not long behind. England first introduced the block system of signaling; while to America is mainly due the later development of automatic appliances. There are two types of power brakes on the world's railways. The Westinghouse brake was invented in America, the vacuum brake in England. The automatic coupler is wholly American. So are the sleeping car and the dining car. Shunting by gravity, which accounts for a saving of millions of dollars a year, was invented in England, but has been mainly developed in America. Brunel, on the Great Western of England, first taught the world what express trains meant. And 40 years later, the English companies in the historic "Race to Edinburg" in 1888 gave a new interpretation of the term. America promptly replied with the "Empire State Express," and bettered the instruction with the "Atlantic City Flyers." The French companies, too, took up the challenge, and put on trains from Paris to Calais, and to the Belgian, German and Spanish frontiers, that could hold their own with anything that England and America had to show. And meanwhile the International Expresses of Prussia and Belgium jogged contentedly behind. It is true that in these two countries the track was not fit for high speeds. Nor was it at the outset in France or America. But it was possible to make it so—at least where it was in the hands of a private company.

Railroading is a progressive science. New ideas lead to new inventions; imply new plant, new methods. And this means the spending of much new capital to be recouped by larger economies later on. The state official mistrusts ideas, pours cold water on new inventions, grudges new expenditure. No one questions the ability of the German people. German manufacturers, German merchants, German bankers have taught the business world a good deal in recent years. German railway men have written many books, some of them valuable; but in practical operation they have taught the railway world nothing. Why? Is it because they are state officials?

*Possibly the Schmit locomotive superheater might be claimed by the German railways as an important improvement of which the credit is theirs.

Civil Service Rules and Promotion by Merit

Railway management, on its main sides of policy, operation and traffic, is essentially a commercial business, requiring commercial training and commercial aptitude. The railwayman, if he is to serve his customers and his shareholders properly, must look ahead, plan boldly for the future, and not fear to take risks. His mind must be alert to recognize and use every new technical improvement, that so he may give the best possible service at the minimum possible expense. He must be quick to observe the course of trade, the changes of demand, the potentialities of new markets and new sources of supply, and to adjust his tariffs accordingly. Above all, he must keep abreast of his work, however arduous, even though it means working all day and half the night, and double tides on Sunday. If he fails—at least in the employ of a private company—he goes; and a better man takes his place.

Can we expect these qualities from a state official? Let the Italian Commission answer. It is true they wrote 35 years ago, but human nature has not greatly altered in the interval. "On a state railway system, the personnel would be chosen according to civil service rules. Seniority would count more than merit or special qualifications. . . . There would be bureaucratic dilatoriness, incompatible with railway service. This applies specially to the executive officers, who need to have, in the highest degree, industrial energy, initiative in planning improvements, commercial intelligence essential in controlling the various classes of expenditure; who have to encourage traffic, improve service, maintain discipline, and so forth. The chief officers and their staff must have a personal interest to stimulate them, and a high sense of responsibility to encourage them to perform their duty. And for men like these, the state would substitute officials with no personal interest in the operating results. Further, the government employee is, as a rule, worse paid and subject to less severe discipline than men in private employment, and consequently, he does less work.

"When the operation of the Upper Italian Railways was temporarily taken over by the state, only a short time elapsed before the discipline, energy and prompitude of the staff, which had been excellent, broke down, and the service became abominably bad. The general rule is that government employees do less work; consequently more men have to be employed; and the wages bill accordingly goes up."

That on this last point, the commissioners were true prophets, the Italian experience since 1909, which has been recorded already, sufficiently shows. As for "industrial energy," "initiative in improvements" and "commercial intelligence," let the Prussian history of unchanged methods and cast-iron tariffs testify. But there is a more important point than these. There is general agreement, both in America and England, that, to avoid the worse evil of political patronage, appointments in the public service must be made by civil service methods. This means appointment by an examination mainly literary, at an early age; a life tenure except in cases of gross incompetence; and promotion mainly by seniority. Will any human being claim that American railroads would have achieved their magnificent record of technical progress, of rates steadily reduced in face of a steady rise, not only of railroad wages, but of prices of almost all other necessities of life, if the management of the railroads had been in the hands of men originally selected

by an examination 40 years before, who had since risen to the top, not as the result of conspicuous competence, but by sheer seniority? And would the men who are now at the head of the railways have stopped in the government service, had they entered it as young men, if they had only had the prospects of promotion and compensation which government service affords?

Possible Abuses of Private Ownership

At this stage it may be fairly said "Granted that state railway systems, like all other human institutions, are far from perfect, what about the abuses of private ownership?" And the point is a fair one. It might well be that the abuses of private ownership are so great that state ownership implies, at least, the lesser of two evils. How do the facts stand?

In the old days in England, there was a saying of an official of the Board of Trade,—afterwards well known as a director of one of the great English railways and president of the Grand Trunk Railroad of Canada, Sir Henry Tyler, —which became famous: "If the state does not control the railways, the railways will control the state." And 30 or 40 years ago, when the railway directors were strongly entrenched in a House of Commons elected on a very restricted suffrage, the phrase perhaps represented something more than a mere rhetorical exaggeration. In reference to England as it is today, the idea is only laughable. The railways are absolutely powerless to resist public opinion. Five and twenty years ago, the House of Commons threw into the waste paper basket the original schedules of maximum rates —on the faith of which private capitalists had embarked five billion dollars in constructing railways. After an inquiry lasting over 10 years, they formally enacted new schedules of maximum rates which the companies "might lawfully charge and make." The companies were so ill-advised as to take Parliament at its word. And they proceeded in many instances to "charge and make" accordingly new rates which implied considerable advances on the scale then in force. Shippers rose in revolt and refused to pay. In the very next session, Parliament deprived the companies of the power which it had given, and enacted that thenceforward no railway company should increase any rate to which one single shipper objected, unless the company could prove affirmatively in a court of justice that the increase of rate was justified by increased cost of doing the business. Similarly in America. There was a time—it will hardly be denied by anyone today—when the great railroads had inordinate powers, and those powers were concentrated in the hands of a single man. Not only might he abuse them for private interest, but in any case the powers were despotic. And democracies will not tolerate despotisms, even if benevolent. But the president-despot—benevolent or otherwise—has long been dead. And his day returns not. Serious critics, both in England and America, have questioned whether private capital will continue to invest in railways, if the state continues to interfere so drastically both with operation and with rates. But no one is heard seriously to assert that Parliament and Congress lack the power to make their will effective, whatever the railroads may say or do.

A main argument put forward in favor of the nationalization of railways in Prussia was that the tariff system of the private companies was honeycombed with rebates, and that rebates were inevitable under private ownership. If this latter statement were true, it would be sufficient justification for sweeping away private ownership, without more. But it is not true. If, after 70 years of private ownership in France, no suggestion has ever been heard that rebates are there given, it is fairly safe to say that they have not been given. In England there were undoubtedly special favors given to certain freighters in the very early days, not probably from corrupt motives, but merely as a matter of commercial custom. To big customers and keen bargainers rate concessions always had been given by the carriers, whether by road or by canal, and at the outset there seemed no reason why railroads should not follow the example. But as long ago as 1854, in words that were practically copied in the original United States act to regulate commerce 33 years later, the English Parliament enacted that rates should, under the same circumstances, be the same to all; and that, if circumstances were different, the difference in rate should be proportionate to the difference in circumstance. And thereupon, rebates disappeared from English railway history. "It is remarkable"—the words are those of a House of Commons committee reporting in 1882 after an exhaustive investigation—"that no witnesses have appeared to complain of preferences given to individuals by railway companies as acts of private favor or partiality, such as were more or less frequent in the years before the act of 1854." One still sees, from time to time, fines inflicted upon American railroad companies for offences of this nature. But in almost every case, the transgression had occurred some years before the infliction of the fine. It is safe to say that nobody in America today believes either that secret rebates exist to an appreciable extent, or that the railroad officials desire to revive the practice of giving them.

Somewhat analogous to direct rebates are concessions given to traders and other persons, whom it is desired to influence, by liberal payment of claims for loss and damage of freight, by under-classification, free transportation and so forth. In France, with a non-competitive system, such practices have apparently never existed. In England they have never cut much figure; and as long ago as 1902, the establishment of a Joint Claims Committee by the companies themselves, put an end to such abuses in this respect as did exist. Free passes in England have never been an abuse, of which the best proof is that they still remain unregulated by law, and a manager can any day privately give a free pass to whom he pleases. That free transportation and the payment of bogus claims were serious abuses on the American railroads not so many years ago is undeniable. No one doubts that they are practically eradicated today. And, after all, the abuse of free transportation is not confined to private railroads. Not very many years ago, the Melbourne Age, the leading paper in the Australian state of Victoria, published a list, occupying eleven and a half closely printed columns, of free passes granted by the state railways to the relations and friends and dependents of members of Parliament.

State Railways Not Usually Profitable

Our history has then reached this stage. In the two countries where the railways are still wholly in private ownership, the United States, and the United Kingdom, nationalization cannot be justified on the ground of lack of private enterprise. Nor is it necessary to avoid abuses; for those abuses can be either prevented or cured by adequate state regulation and supervision. Further, it does not appear that the state is likely to build railways cheaper. Still less, that it will surpass private companies in efficiency of management, and will therefore have available more net revenue to be applied either to improvement of service or reduction of rates in the country as a whole.

With the exception of the South African Dominion—whose railways are not, however, important, and which owe their moderate success to the fact that the great mining community of Johannesburg, importing almost everything it consumes, and accustomed to pay gold miners' prices, is many hundreds of miles from the sea—Prussia is the only country where the state system shows a substantial profit after payment of operating expenses and interest on capital. And this fortunate position Prussia owes to two things. It bought the railways at a most opportune moment, just before

the great industrial and commercial development that has made modern Germany; and the government has been powerful enough to maintain the scale of rates, as we have seen, practically unaltered over a long series of years. Belgium roughly makes both ends meet. Switzerland the same. The smaller German states and the Australasian colonies, speaking broadly over a series of years, have to make up some part of their interest charges out of general taxation. Austria, Italy, and France on its state railways, as we have seen, produce deplorable financial results.

Is State Management More Equitable?

It is, however, claimed that the state would apportion its favors with a more equal hand; would level the backward parts of the country up to the standard of the better developed; and adjust rates and fares more equitably. These were promises made by the Prussian government when they took over the railways. And so far as the first half of the promise, the extension of the railroads into poor districts, is concerned, unquestionably it has been fulfilled. But the reason is to be found, not in the beneficence of the State, so much as in the fact that the only power in Prussia that counts besides the throne, is that of the agrarian party, the Junkers. Partly owing to their hereditary influence over the executive government, and partly to the fact that the agricultural districts are enormously over-represented in the Prussian parliament, they have succeeded in getting a good share of the surplus revenues from the manufacturing districts devoted to developing their own estates. On the other hand, as has already been mentioned, when it comes to tariffs, no country has gone as far as Prussia in giving advantage to the big shipper over the small man.

In Australia undoubtedly railroads have been built in backward districts which private enterprise would never have touched. But if a railroad, after being open for traffic for ten or a dozen years, still hardly does more than pay its operating expenses, it is safe to say that it is not an undertaking which would have been entered upon at all by a prudent management, had it been free to spend its capital where it would do most good to the public as a whole. In other words, the reason why such a line was built was political pressure. And that such lines are common enough all over Australia is sufficiently well known. Indeed, the report of the Victorian State Railways for 1907 gives a list of seven branches, with an aggregate length of 46 miles, constructed at a cost of $1,883,336, which were closed for traffic at various dates between 1898 and 1904, and abandoned altogether because gross receipts failed even to cover operating expenses.

The claim that the state will adjust rates and fares more equitably is more difficult to deal with. The famous Prussian Finance Minister von Miquel asserted categorically that the only possible policy for a state system was to adopt a rigid tariff uniform over the whole country. And that is, in fact, the Prussian system of today. For 500 miles the rate is 10 times that for 50 miles. Whether this is equitable is another question. It certainly does not cost the railway ten times as much to do the business. Nor does it seem to be treating the shipper in accordance with the canon of taxation which says that the end to be aimed at is equality of sacrifice by the taxpayer. But, be that as it may, while such a policy is possible for Prussia, with only a small seaboard, and where the government owns, not only the railways, but the canals, it is unthinkable in England or in America. Imagine an English government charging from London to Edinburgh 10 times as much as for the first 40 miles out of London. The only result would be to drive all the traffic to the coasting steamers. As for America, the thing is still more impossible.

National Railways in a Democratic State

We come now to a more important point, a point which may probably be said to be of more importance than all the others put together. Prussia is undoubtedly the most successful instance of state railway management. Reasons have been given already for thinking that the Prussian success, achieved under uniquely favorable circumstances, is not so much to boast of after all. But let it be admitted for the sake of argument that the success is as brilliant as it appears to the imagination of the most enthusiastic German professor. The point cannot be too much insisted on that the success of the Prussian autocracy is no argument for similar success in the hands of English or American democracies.

A great American, who has lately passed over the majority, Charles Francis Adams, put the matter nearly 40 years ago in words that have so often been quoted that they have become classic:

"In applying results drawn from the experience of one country to problems which present themselves in another, the difference of social and political habit and education should ever be borne in mind. Because in the countries of continental Europe the state can and does hold close relations, amounting even to ownership, with the railroads, it does not follow that the same course could be successfully pursued in England or in America. The former nations are by political habit administrative, the latter are parliamentary; in other words, France and Germany are essentially executive in their governmental systems, while England and America are legislative. Now the executive may design, construct, or operate a railroad; the legislative never can. A country, therefore, with a weak or unstable executive, or a crude and imperfect civil service, should accept with caution results achieved under a government of bureaus."

A railroad is a great business concern. And as every business man knows, a business concern, if it is to prosper, must have a single directing mind at the head. Under an autocratic system, the head is the minister of railways, ultimately responsible to the monarch, and to him alone. He may consult his customers, passengers and shippers, listen to their grievances and welcome their suggestions—the Prussian government has an admirably organized system of district and national councils for this very object. But he alone decides. The king of Prussia is as really the head of the railroads as he is the head of the army. Between a railway chief in this position and a minister in a democratic country, changing every few years as his party goes in or out of power, liable at any moment to be out-voted if he refuses a concession that a substantial section of members of the legislature combine to demand, no comparison is possible. "The executive may design, construct, or operate a railroad." And this is what happens in Prussia. "The legislative never can," and in democratic countries it is the legislative branch of the government which not only decides policy but dictates always in main outline, often down to the detail of a particular appointment or a special rate, how the policy shall be carried out.

It may be objected that in every country, whatever be the form of government, the state runs the post office; and in almost every country the telegraphs, if not the telephones also. If it can manage these, why not also railroads? The answer is that between these two classes of business there is no analogy. The post office is a purely executive business, with no commercial side to it. Uniform rates, two cents or a penny or whatever the figure be, equal for all distances, are accepted as a matter of course. The amount is so small that nobody objects. If the charge for a letter were, not two cents but a dollar, people would fast enough be found to protest that it was unreasonable to charge the same from Wall street to Central Park as from Boston to San Francisco. A business such as this can be managed well enough by a civil service organization. It is essentially a matter of routine and operating efficiency. There may be, in fact there usually is, political interference in reference to appointments and promotions. And the staff no doubt avail

themselves of their votes to improve their wages and working conditions. But this, though a pretty serious matter, is not so vitally important as the difficulties on the side of commercial management.

Whether a new railroad shall be built is not a matter where precedents and fixed rules can decide. It can only be decided by a man able to bring to bear on the question a trained mind and ripe judgment, after taking into account all the factors of probable traffic, probable cost, and whether the limited amount of capital available would not be better employed elsewhere, perhaps in something like double tracking, or the construction of a new classification yard, which does not appear directly to benefit any single member of the public. It is hard enough for the best man, left free to exercise his unbiased judgment, to decide such questions rightly. Can it be expected that they will be decided rightly by a minister responsible to a democratic legislature, each member of which, naturally and rightly, makes the best case he can for his own constituents, while he is quite ignorant, even if not careless, of the interests, not only of his neighbors' constituency, but of the public at large? The answer is written large in railway history.

Conclusions

President Hadley has summed up the conclusions of the Italian Railway Commission based on the railway experience of the world, as it existed 35 years ago, as follows:

(1) Most of the pleas for state management are based upon the idea that the state would perform many services much cheaper than they are performed by private companies. This is a mistake. The tendency is decidedly the other way. * * * The state is much more likely to attempt to tax industry than to foster it.

(2) State management is more costly than private management. * * *

(3) The political dangers would be very great. Politics would corrupt the railroad management, and the railroad management would corrupt politics. * * *

In this condensed review an attempt—hampered by the condition that the most important facts of contemporary history are not always those that can be most readily published—has been made, subject to strict limitations of space, to bring the history up-to-date. And the conclusions of the Italian commission still seem to stand firm.

The essential lesson of the history may be said to be this: It is impossible to obtain satisfactory results on government railways in a democratic state unless the management is cut loose from direct political control. Neither Australia nor any other country with a democratic constitution—perhaps an exception ought to be made of Switzerland—has succeeded in maintaining a permanent severance. The Australian parliaments have loosened their hold for a few years, but only for a few years. In France, in Belgium, in Italy, parliamentary interference has never been abandoned for a moment. Without imputing a double dose of original sin to politicians, it is easy to see why this happens. The railways belong to the people. Parliament is the authorized representative of the people. It seems therefore to the ordinary citizen only right and natural that parliament should control the management of the people's railways. And yet facts are stubborn things; and the facts show that parliamentary interference has meant running the railways, not for the benefit of the people at large, but to satisfy local and sectional or even personal interests. They show further that, under parliamentary management, it is easier to get money for big schemes of new construction than for inconspicuous day-to-day betterments and improvements which probably would produce much greater public benefit. Some day perhaps, having learned wisdom by experience, a parliament and a people may recognize that management for the people is not necessarily management by the people; that there are other branches of government, besides the judicial branch, unsuited for popular interference; and may establish a permanent state railway organization, with its own board of directors, with its own separate budget, and entirely independent of parliamentary control, but controlled like any private company by a judicially minded commission, required also like a private company to earn a dividend for its stockholders, the people. And then a main objection to government railways in a democratic state will have lost its force. But hitherto no parliament and no people have recognized this fact, even though it stands out abundantly clear on the pages of railway history.

Higher Rates and Unified Federal Regulation Needed

Two steps are necessary to solve the railway problem of the United States and to avert the serious commercial crisis that confronts the country on account of the existing transportation situation, Mr. Acworth told the committee in the course of the cross-examination on his statement, on May 8, and May 9. Members of the committee asked Mr. Acworth a great variety of questions as to the working of government ownership of railways in other countries and sought to have him apply his knowledge of general railway conditions to the existing situation in the United States.

The first of the two requirements that he regarded as essential, Mr. Acworth said, is to allow the railroads to charge freight rates sufficient to meet the great advance in operating expenses that has taken place and to enable them to command the capital necessary to provide the extensions and improvements needed to meet the growing demands of business. The second is to do away with the multiple and conflicting systems of regulation that now hamper railway operation and to provide one single federal regulatory agency with such local subdivisions as may be deemed necessary.

In answer to a question by Senator Robinson as to whether he considered that railroad rates in the United States were too low Mr. Acworth replied, "Very much so," and proceeded to explain how, in his opinion, this condition has arisen.

"It seems to me it is quite clear what has happened," he said. "You had a long series of falling prices and you had railroads endeavoring very rapidly to make great economies by bigger cars and bigger engines and bigger train loads, and all the rest of it, and you also had strong competition, and the result of all those things was that the railroads, by buying everything cheaper, economizing in their methods, could afford to carry very cheaply. They tried to carry a bit too cheaply in order to cut each other's throats. Now, then, at the stage when they had got to the lowest rate you introduce regulation, and the regulation says, 'We will keep the rates down to that figure in the face of a market that has gone up 100 or 120 per cent for everything they use and for the wages they have to pay.' Looking at it as an outsider, the thing must break down; it cannot do anything else."

In response to further questions on this subject propounded by Representative Sims, Mr. Acworth said: "The fundamental point is this: I do not care what your machinery is; in the long run you will never buy more than three-quarters of a cent's worth of work for three-quarters of a cent. That is the real essence of the American situation. What you are asking the railroads to do is to work at a price that they cannot work at, and whoever manages the railroads—if you had archangels to manage the American railways, and only allowed them an average income of 7.38 mills per ton-mile they could not do the work, and raise the capital necessary to increase the plant."

A query as to the cause of car shortage and congestion on the railroads was put by Senator Robinson to which Mr. Acworth replied: "It is due to the fact that capitalists have not thought the prospect good enough to spend the money necessary to make the increase of facilities that is required in

your country, if your country is not to have a collapse of its trade. I have been watching it for years and that is my firm conviction."

Senator Robinson asked whether the service of the railroads would be improved if a single standard of regulation were adopted instead of the present system of regulation both by the federal government and the states.

"It seems to me that it must be so," replied Mr. Acworth. "I put it this way. Suppose you have two states, each of which is perfectly wise, but decide differently; you would do better to substitute for them a central government that was not as intelligent." He added that if the present system of multiple regulation had not grown up as a historical development from the peculiar governmental organization of the United States nobody would think of introducing it now on the ground of efficiency.

Senator Cummins made the suggestion that one difficulty in the adjustment of rates under present conditions was found in the fact that rates which might provide a satisfactory financial return for strong companies would not enable other weaker lines to operate on a remunerative basis. He inquired as to the feasibility of a plan that would permit existing strong systems to purchase other less successful lines or that would provide for the incorporation of companies under federal charter to acquire and combine existing lines so located as to supplement one another.

"I believe that is a very practical policy," said Mr. Acworth. "It could not be done by hard and fast orders to do it instantly, but if you encourage one governmental supervision and a policy of consolidation I have no doubt that would work itself out in the course of time. That is what is happening in England and has been for a good many years."

Representative Sims expressed doubt as to whether it would be possible to put through Congress the measures suggested by railway authorities who had appeared before the committee and who had asserted, he said, that government ownership was the only alternative to the adoption of their proposals.

"Then I am sorry for the American public," commented Mr. Acworth. "The American public will suffer. The people of the United States are going to have their traffic facilities absolutely blocked in that case, because you may introduce bills, but you are not going to get the government into possession of the railroads and get the new machinery started next week or the week after. There will be a gap of some years and before that time has elapsed you will have the machinery broken down." Stating his conclusions in answer to the question whether it were better in the interest of the public to have the railways owned by the government or by private corporations, Mr. Acworth said:

"It seems to me that all government enterprises seek a revenue, not by launching out boldly and getting a satisfactory return by such enterprise, but by cheese-paring and cutting down on the expenses. They try it by cutting down expenses and not by improving the road. It seems to me that applies to government enterprises everywhere, certainly in Europe. Now, the English railways, which never had a shilling of government money, never had any government help in the world, certainly led the world for a great many years in the early days. When men wanted to know how to run a railway they came to England to learn. The railway literature of 40 and 50 years ago is full of French and German and American books by people who came to England and learned from the private railways of England how to do things. Nowadays if men want to learn how to run a railway—the French and the Germans and the English—they come to the American railroads and learn from them. The American railroads, which are the best in the world, are entirely the result of private enterprise, and I think these two examples go a very long way toward proving the case."

LUBRICATION OF FREIGHT CARS IN INTERCHANGE*

By T. J. Burns
Superintendent Rolling Stock Michigan Central

The question of hot boxes, their cause and their cure, has been discussed at every railroad club, in the offices of executives, and in the car men's shanty from time immemorial, and we are apparently no nearer a solution of the difficulty than ever—the hot box in its recurring epidemics is still the bugbear of the profession, so to speak. Are the car men of the country to continue their assaults on the hot box situation along the old line of attack, and rest satisfied that the best has been done that can be done when the mere mechanical processes of the problem have been worked out? Is there no other action to be taken, no policy of lubrication as distinguished from purely mechanical practice which can be introduced that will help us out of the trenches?

I have no intention of discussing methods of packing hot boxes, or in attempting to arrive at any new conclusions as to the best methods of performing the work in a way that leads to greater economy. These points have all been carefully canvassed and we all have our published instructions on lubrication which are undoubtedly quite sufficient. Any further discussion at this time along these particular lines, while no doubt interesting, will get us nowhere in particular.

What I would like to submit, however, is a proposition contemplating that, instead of handling the lubrication of the freight car equipment as it is now handled under the theory that foreign cars will be given the same attention as owned cars, lubrication be put squarely under the M. C. B. Rules of Interchange the same as any other repair. I would propose that Rule 1, the corner-stone of the M. C. B. code, be radically changed. I think the time has come when this rule will have to be changed. In its old wording it has specified that the receiving line shall provide the same care and attention as to packing and oiling that it gives its own equipment. This was a good theory in its day and in the infancy of car interchange perhaps it served its purpose. But it has become too much of a theory. With the tightening up of supervision and the devolpment of lubrication economies some mistaken policies have crept in. I feel I am violating no confidences when I say that it has become a part of the disposition of the receiving line to use only such of its lubricating materials as is absolutely necessary to carry a car over its own rails. I fear we are all more or less tarred with the same stick. Why? Simply because of no compensation either in labor or material for work performed. The result is that the foreign car long off its own rails, running from pillar to post with only such spasmodic oiling as is absolutely necessary at the time, eventually develops a hot box and a new brass is necessary, or perhaps a change of wheels.

In our passenger car service where we have the equipment in our own control we repack periodically, but on our freight equipment just because a car is out of our hands we leave it to its fate. Why is it not as necessary to repack freight equipment as passenger equipment? The freight car journal box and its contained parts, the journal, the waste, and the oil, are not of another world, they are of the same physical nature and subject to the same physical laws. Obviously, if we are to expect anywhere near similar performance from the two branches of the service they must receive somewhere near similar treatment. The answer is easy; attend to the packing. The only way this ever will be done will be by inserting in the code a rule that will meet with the necessities of the situation, by putting a premium on the work, and by paying for goods delivered—just as you have

* A paper read before the Central Railway Club, May 11, 1917.

done in your repair schedules by inserting a price that makes it an inducement for a foreign line to help maintain your car and keep it in operation. In other words, institute a system of periodical repacking and reoiling of the freight equipment of the country at large, and by that I mean all the equipment both of railroad companies and private ownership.

Right here I may as well anticipate the private car owner who will surely rise up in protest. The private car lines who are doing their full duty are not aimed at. If they will do their repacking as they should and guarantee their work by the stencil on their cars, that is all that will be asked of them. The private car owner is surely concerned in the continuous and successful movement of his car equally with the handling line, and one of his cars cut out or delayed enroute is an economic loss in which he has to participate in the final analysis. I only ask that they agree that a fair compensation is due the railroad company that repacked the car and stenciled on the car the necessary data.

All that I have said about the private car owner applies with full force to many of our railroads, and in all fairness to the private car owner we will have to admit that many of them now recognize the importance to themselves of proper lubrication of their equipment, doing work at their own plants that some of the railroads might do well to imitate. There are, however, unfortunately, some private car owners who make no pretense whatever as to the care of journal boxes, and I have this moment distinctly in mind one plant I visited recently where the man in charge took credit unto himself that his expense along this line was nil, and the only oil or waste supply in the entire yard was in a barrel that was used as a receptacle for old packing from destroyed trucks—and here again I may interject that there are some railroads of the same nationality, roads that deliberately "unload" on the receiving lines.

. No calling together for educational purposes of our car oilers, no lubrication experts traveling over our line, no posting of blue prints, no instructions to our men, no technical discussions as to journal weights, designs of packing hooks, viscosity of oil, etc., will get us any farther on the high road of broad efficiency in lubrication matters than we now are. If we are looking for further progress in these matters we will have to work away from the idea that unrestricted car movements can be properly cared for by a restricted policy of any kind.

The details of the scheme of periodical reoiling and repacking, it is not my purpose to outline in this paper. These matters can be handled more satisfactorily by a competent committee. In general, however, I would suggest that all boxes be repacked, say once a year, date of repacking to be suitably stenciled on the body or trucks of the car, a rule covering the matter together with a proper charge and with suitable specifications as to methods to be followed, to be incorporated in the M. C. B. code in its proper place and, as mentioned earlier, the re-vamping of rule No. 1 to correspond.

I am omitting all arguments on the final economies that will result to the carriers from a method of this kind. These should be apparent to any car man. One great cause of loss of oil and the one great argument against the oil can and its free oil has been the waste of oil that ensues from allowing soggy waste to remain in the oil box, and the practice that follows of pouring oil on top of it with the one result that it goes to the bottom of the box and lies there until finally enough has been poured in to allow it to overflow on the ground. The only oil in any journal box that ever did any good was the thin film between the journal and the brass.

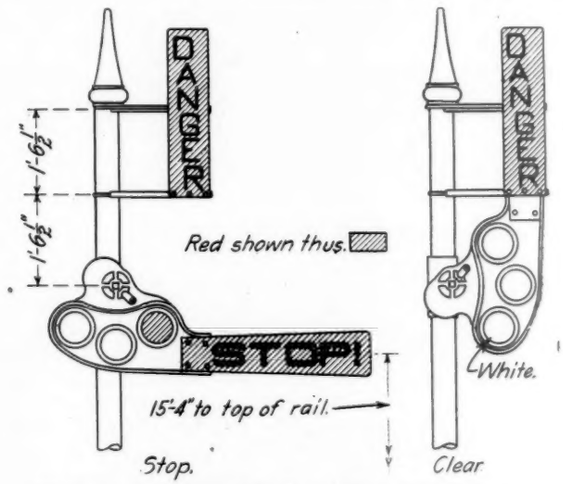
I fully realize that my position in this matter will be attacked. However, I wish to start a campaign of publicity. I am confident that the day will come when a plan of this kind will go into effect, and it may come much sooner than any of us expect.

In the great transportation scheme of the United States why do we satisfy ourselves with a localized treatment of a problem that affects nation-wide commerce? If our railroads were all subject to one general supervision, how long would we be allowed, in handling our transcontinental traffic, to work under a lubrication plan that boasts of no system, is intermittent in its application, and inefficient in results? The problems that have to do with car supply, mileage, per diem, even M. C. B. repairs, have all been worked out or are being worked to a point that will measure up to the obligations of the carriers to the traffic of the country, and yet we car men sit supremely satisfied with our local, cramped system of lubrication. If we are unable to see the light ourselves, I very much fear it will be pointed out to us.

SEMAPHORES FOR HIGHWAY CROSSINGS

The Atlantic Coast Line has installed at four crossings of highways, to give warning to wayfarers, regular semaphore signals. The arrangement of the signal, to show the word STOP, in white letters, when the arm is horizontal, indicating that a train is approaching, and to keep the arm out of sight when the way is clear, is shown in the drawing. The shield which conceals the arm when it is in the vertical position is lettered with the word DANGER, in white lines on a red background. The signals stand normally at clear.

By the use of these signals, instead of bells, the operating apparatus is made "closed circuit;" that is to say, failure

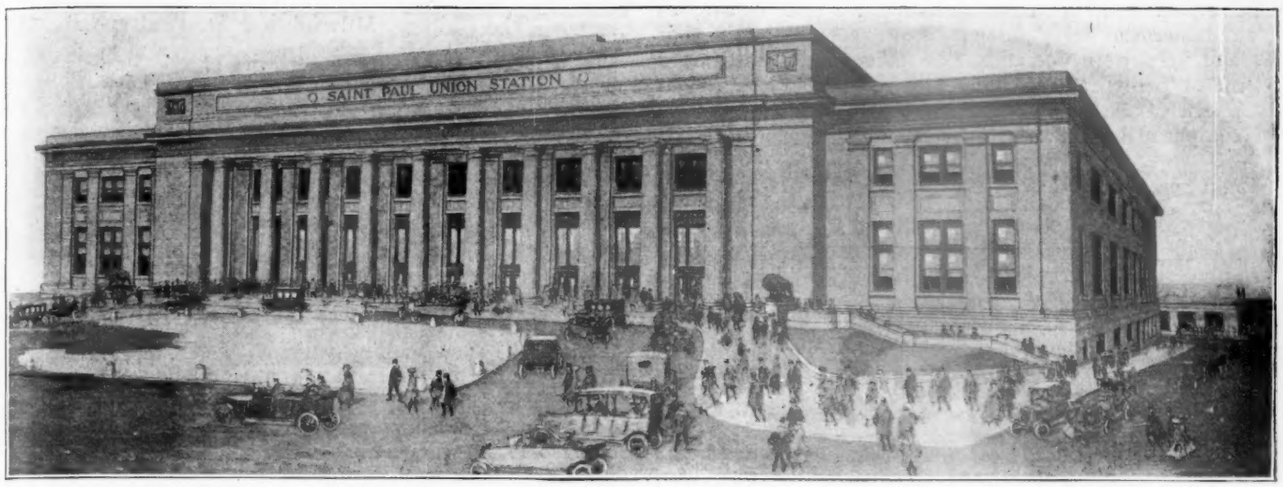


Highway Crossing Signal, Atlantic Coast Line

of the apparatus or exhaustion of power will put the signal in the stop position.

The Chicago, Indianapolis & Louisville has used a semaphore at a highway crossing in Indianapolis for the past two years with satisfactory results. In this case, the warning sign is a blade 12 in. wide and 5 ft. long, and it is 18 ft. above the level of the street. With this signal the power used is 5 amperes and 9 volts, and the signal clears in 12 seconds. The circuit for the signal on the side of the street farthest from the battery is controlled by a circuit breaker on the nearer signal so that, of the two signals, only one can draw current from the battery at the same time.

COMPLETION OF RAILWAY SECTION IN COLOMBIA.—The Colombian Government has ordered the payment of a subvention of $46,000 in bonds to the Antioquia Railway Company for the completion of the section of railroad between the stations Botero and Porcecito. This line was opened to service on January 20, 1917.

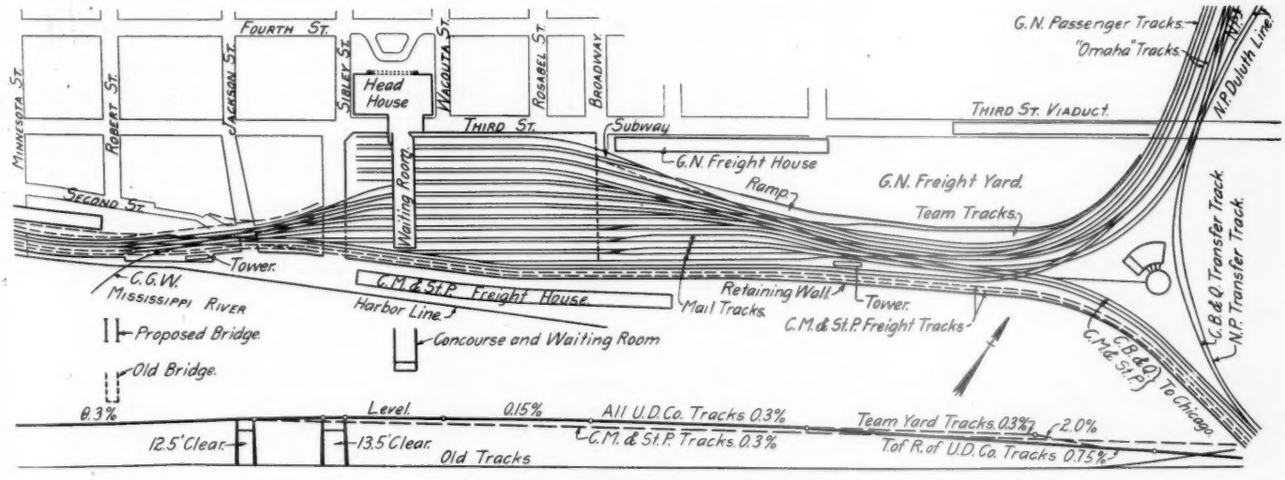


Architect's Drawing Showing the North Elevation of the Station

New Union Station Plans Completed for St. Paul

Details of the Revised Design With Data Regarding Track and Building Arrangements. Work to Begin Soon

AFTER extended negotiations with the city, the St. Paul Union Depot Company has just secured the approval of its plans for complete new passenger facilities for the joint use of all the roads entering that city. Preliminary construction work involving the wrecking of a number of buildings on the site of the new head house, has been proceeding in a limited way for several weeks, but it is expected that work will be undertaken vigorously in the near future. The project involves a total estimated expenditure of $11,000,000, of which $1,500,000 will be for the station building itself and $3,250,000 for the track layout, including the grading. Because of the necessity of handling traffic without interruption during the entire period of construction it is expected that four years will be required for the completion of this work.



Track Layout and General Location

DIFFICULTIES IN SECURING SUFFICIENT ROOM

This is the second complete design which has been prepared for this project. The old station was destroyed by fire on October 3, 1913. While the terminal had been inadequate for the traffic for some time and tentative plans for its reconstruction had been under consideration for several years, the destruction of the building made imperative the development of a new terminal. The location of the station property on the sloping hillside between the Mississippi river and a well-developed commercial section of the city has made the problem of enlarging the terminal a difficult one. This has been further complicated by the necessity of considering the numerous and somewhat conflicting interests of the roads whose property joins that of the station on three sides.

To secure the desired room for expansion the plans prepared two years ago contemplated the moving of the channel of the river south or away from the tracks a maximum distance of about 400 ft., as described in the *Railway Age Gazette* of February 12, 1915. While the government did not actually oppose this change, it became evident during the negotiations that it would impose restrictions which would be so burdensome as to render their acceptance by the Union Depot Company impracticable. The negotiations

were therefore dropped and work was begun on a complete new set of plans involving expansion on the hill, or city side, of the present station.

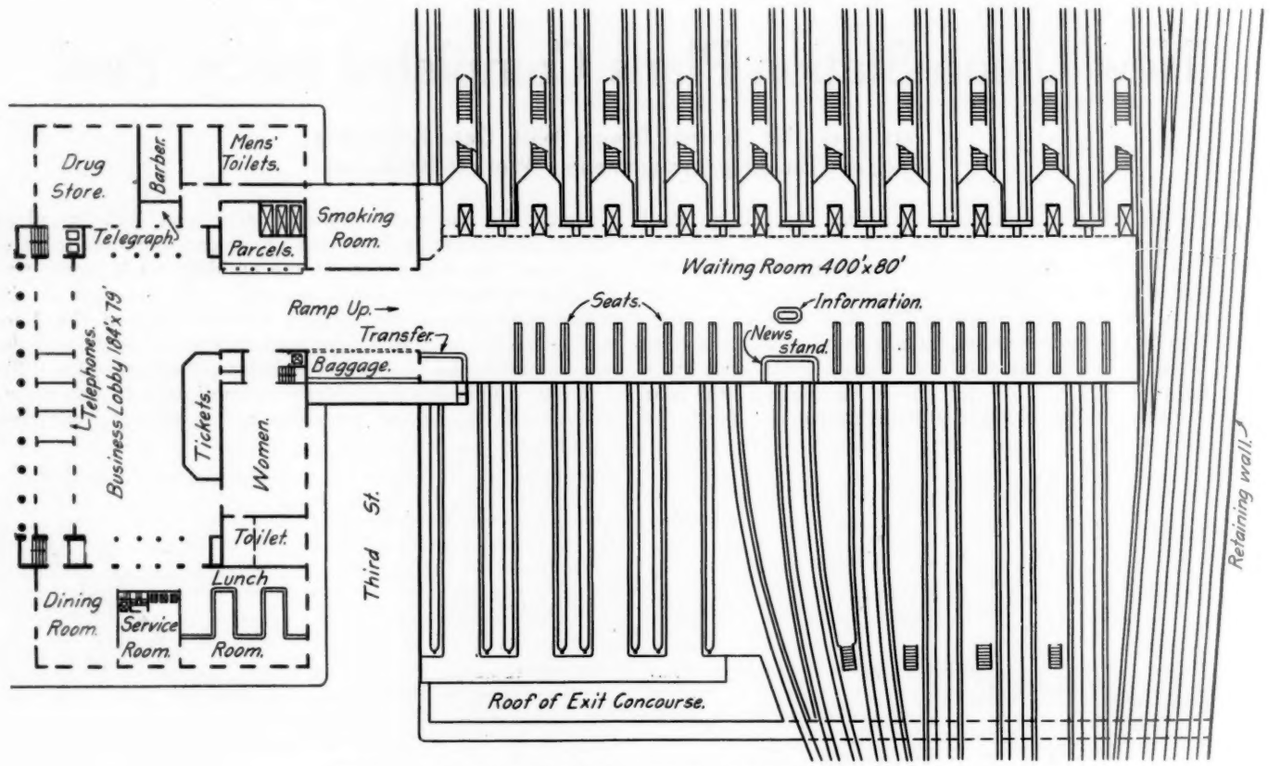
In the revised layout only a small amount of land is taken from the Chicago, Milwaukee & St. Paul on the river side, and its facilities are not materially disturbed. The necessary room for expansion has been secured on the opposite side. The 150-ft. strip of land between the old station property and Third street, now occupied by warehouses, has been acquired, as has also a considerable area of Great Northern property now occupied by freight houses and team tracks. This has necessitated the abandonment by the Great Northern of one freight house and a considerable part of its trackage which it is planning to replace by new facilities on Seventh street.

Complicated Traffic Movements

The St. Paul Union Depot Company is a terminal organization whose stock is owned equally by the nine roads entering the city: the Chicago, Burlington & Quincy, the Chicago Great Western, the Chicago, Milwaukee & St. Paul, the Chicago, Rock Island & Pacific, the Chicago, St. Paul, Minneapolis & Omaha, the Great Northern, the Minneapolis & St. Louis, the Minneapolis, St. Paul & Sault Ste. Marie and the Northern Pacific. Four of these roads, the Omaha, the Great Northern, the Northern Pacific and the St. Paul, handle over 62 per cent of the trains entering the station while the remaining five roads bring in less than 40 per cent.

There are three main approaches to the station, from the northeast, the southeast and the west. The Great Northern, the Minneapolis & St. Louis and the Northern Pacific enter the station from the northeast, and their trains terminate their runs at this point. A few Chicago, Burlington & Quincy suburban trains from the southeast also terminate their runs here while the through trains reverse direction in the station and use the Great Northern tracks to Minneapolis. The Chicago, Milwaukee & St. Paul and the Chicago, Rock Island & Pacific trains make a through movement between the west and southeast approaches, while the Chicago Great Western, the Minneapolis, St. Paul & Sault Ste. Marie trains from and to the East and the Chicago, St. Paul, Minneapolis & Omaha trains from the South and West make a through movement through the west and the northeast approaches. The trains of the Soo Line from the Northwest enter the station from the west and terminate at this point. Therefore, a track layout must be provided which will permit movements directly through the station, movements into the station by trains terminating at that point, and the handling of through trains which depart through the same entrance through which they arrive.

The density of the traffic passing through this station is indicated by the fact that 71,839 trains arrived and departed in 1916, an average of 196 per day. During this period 477,001 cars were handled, an average of 7.64 cars per train. The total amount of baggage received and forwarded was 1,285,852 pieces; of railway supplies, 323,742; and of milk cans, 575,879; or daily averages of 3,513, 885 and 1,573 respectively, a combined daily total of 6,347 pieces. Also, approximately 445 tons of mail is handled daily while over 5,000,000 pieces of express pass through the terminal in charge of the six companies annually. In addition to the tickets sold by the individual roads at their city offices, 917,220 were sold at the Union Station during 1916, of a total value of $2,811,659.94. It is interesting to note that the amount of mail passing through this station has doubled about every seven years, and baggage about every 10 years, and that the number of passenger cars has doubled about every 12 years.



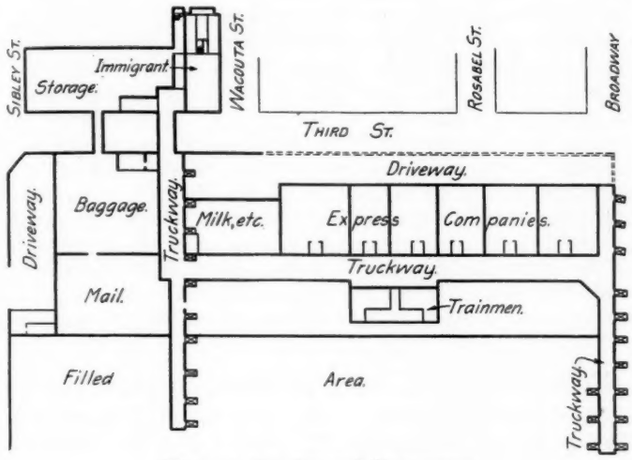
Plan of the Station Building at the Waiting Room Level

The Station Building

The head house for the new station will be located on the north side of Third street in the south half of the block bounded by Third, Sibley, Fourth and Wacouta streets. The

building will be 300 ft. long and 150 ft. wide and will face northwest on a plaza occupying the remainder of the block. This will not only provide an attractive setting for the station but will also reserve space for enlargement if this should become necessary at any time in the future. The main building will be two stories in height with the main floor elevation four feet above the level of Fourth and Sibley streets. Two basements will also be provided.

The main entrance will face on Fourth street and will be reached by sidewalks and from a driveway on the plaza. Three groups of three doors each, open between massive pillars into small vestibules which lead directly into the business lobby. All the facilities which a traveler will ordinarily require in preparation for a journey are grouped about this lobby which will be entirely free of seats. The ticket office is located in a conspicuous position directly opposite the entrance. At the left of the entrance there will



Plan of the Second Basement

be a drug store and to the rear of that a telegraph office, check room and men's toilet. Telephone and information booths are placed between the two entrances. The dining and lunch rooms will occupy the west end of the building, while the women's rest and toilet rooms will be placed directly back of the ticket office.

The waiting room will be located over the tracks south of Third street, with the floor 2½ ft. above that of the lobby. It will be connected with this lobby by a passage-way built on a slight ascending grade and crossing Third street overhead. On one side of this passage-way will be the baggage checking counter with an elevator leading to the baggage room below, while the men's smoking room will be opposite.

The waiting room will be 80 ft. wide and 400 ft. long. Seats will extend out from the wall on one side while the train gates will be located in the opposite wall at the head of stairways leading to the track platforms below. An information bureau will be placed in the center of this room and a news-stand against the wall back of it. This entire arrangement permits a direct movement from the street to the train without reversing at any point.

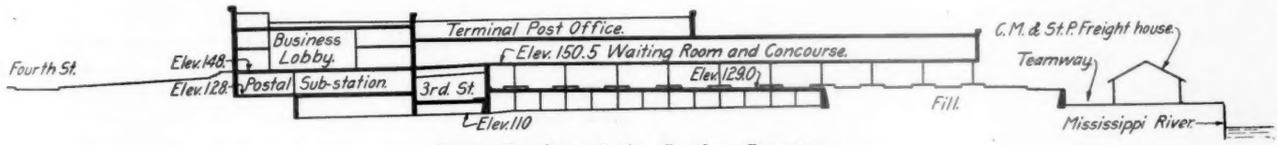
The stairways leading from the waiting room to the platforms will be used by both incoming and outgoing passengers. Exits will also be provided at the west end of the stub-tracks leading through a concourse to the street level at Third street. Other exits will be located at the west ends of the platforms along the through tracks leading down to the subway carrying Sibley street under these tracks. In this way it will not be necessary for incoming passengers to go through the station unless they desire to.

The first basement or track floor level of the head house will have a space of 100 ft. by 300 ft. available for post-office purposes. The remainder of the space in this basement will be used as store rooms and work rooms. The mail and baggage rooms will be located under the tracks at the corner of Third and Sibley streets, with entrance from Sibley street. They will occupy a space 160 ft. by 275 ft., about equally divided. East of this and under the track space will be provided for each of the six express companies and also for the handling of milk and railway supplies. A total floor space of 260,000 sq. ft. will be devoted to the baggage, mail and express service. A driveway will be provided along Sibley street to serve the baggage and mail rooms and a similar driveway along Third street to reach the express rooms. Back of the express offices a baggage and mail trucking subway will extend east to a point opposite the center of Broadway, where it will connect with a trucking subway passing under the tracks. This latter subway will be 20 ft. wide and will have 12.5 ft. clear headroom. Elevators will provide access to the platforms above, and in conjunction with those in the baggage and express rooms at the station end of the platform a total of 27 elevators will be provided for the handling of baggage, mail and express. With this arrangement the trucking of baggage, mail or express down the platforms in a way to interfere with passengers will be avoided.

A part of the second basement under the head house is given over to immigrant quarters and the remainder to storage. A trucking tunnel passes from this floor underneath Third street connecting with the baggage room. The second floor in the head house will be devoted primarily to offices but will also contain a women's rest room, retiring and emergency rooms and the kitchen in connection with the dining and lunch rooms which are on the main floor. Provision has been made for adding another story over about one half of the waiting room for use of the railway mail service if the Post Office Department desires it.

The Track Layout

As outlined above, some of the trains stop here, while others pass through so that the track layout requires a combination stub and through terminal with flexible track connections leading to the three main approaches. The exist-



Cross Section of the Station Structure

ing layout includes 14 tracks, six of which are stub. In the plan prepared two years ago, 16 stub and 10 through tracks were contemplated. A recent analysis of the train movements for a typical day showed that 148 trains had to use the through tracks and that only 61 could use the stub tracks. The capacity of the old plan was, therefore, limited to that of the through tracks. For this reason, 14 through tracks are now planned with only eight stub tracks, and because of the nature of traffic will give a greater capacity than the 26 tracks in the old layout. These tracks vary in length from 800 to 1,800 ft. and have a total combined length of 27,200 ft. They will be spaced alternately 29 ft. 6 in., and 12 ft. 6 in. between centers. In addition to

the tracks immediately in the station, four tracks will be provided in the east entrance to the station yard for the transfer of mail and express. Eight solid mail and express trains will be handled on these tracks daily, in addition to cars moving in passenger trains.

Concrete platforms will be built along the tracks in the station with the top 8 in. above the top of rail. Eleven such platforms will be built with a total length of 10,800 ft. Wooden platforms will be built level with the top of rail along the main and express transfer tracks. The passenger platforms will be protected by butterfly train sheds of steel construction, 10,200 lin. ft. of which will be required. Also 2,400 lin. ft. of shelter sheds will be built over the mail and express platforms.

The entrance to the station at the east end and the crossings in that vicinity will be controlled by a large interlocking plant situated at the throat of the station yard. A similar but a smaller tower will be located west of Jackson street to govern movements at that end of the station, and also over the crossing of the Chicago Great Western with the St. Paul and the Union station tracks.

All Tracks Will Be Elevated

All tracks through the station are to be elevated and will cross over Sibley and Jackson streets involving a raise in grade of approximately 17 ft. at those points. Access to this elevation from the Great Northern line, and the Northern Pacific line from the northeast, and also from the Burlington and St. Paul lines from the southeast, will be on a 0.75 per cent grade up to the east end of the mail and express transfer tracks; and from this point to the east end of the station the tracks will come up to the new level on a 0.3 per cent grade. Through the station the tracks are on a 0.15 per cent ascending grade to the west from Broadway at Wacouta street, from which point they are level as far west as Sibley street. The Chicago, Milwaukee & St. Paul retains two tracks outside of and immediately adjacent to the Union depot property. These tracks will be raised to the grade of the station tracks at Sibley street, but will drop down to the east on a 0.3 per cent grade from that point.

The elevation of these tracks will require the bringing in of about 480,000 cu. yd. of filling material, practically all of which will be handled by trains. Approximately 17,000 lineal feet of retaining walls will also be required on the Union station property east of the west property line at Minnesota street. A long retaining wall will be provided between the tracks of the Union Station Company on the higher level and those of the Great Northern which will remain at the original level east of the station, and other walls will be provided on both sides of the tracks from Sibley street west.

A subway 80 ft. wide and with 13.5 clear headroom will be provided at Sibley street. At Jackson street a similar subway 60 ft. wide and with 12.5 clear height will be built. A subway will extend under the tracks from Jackson street west to the Omaha freight house west of Robert street, while still another subway will extend east from Broadway about 500 ft. to the team tracks of the Union Station Company at the new elevation.

The 13 tracks at the north side of the station from Sibley street to the trucking subway at Broadway will be carried on flat slab concrete construction to provide space for the baggage and express facilities referred to above. The remainder of the tracks will be on an embankment.

One of the most difficult problems presented in the design of this station has been the elimination of congestion at the east wye. The tracks at this point are not only used for direct and reverse passenger movements, but also for a large amount of interchange and switching traffic. As a result delays at this point have been very frequent and they have been constantly growing more serious. The plans prepared two years ago contemplated the separation of grades at this point. Confronted with the necessity of reducing the cost in the recent plans, the grade separation feature was abandoned and the alternative of reducing the number of freight movements through this point has been adopted. This will be secured primarily by the construction of a belt line jointly by the Burlington, the Great Northern and the Northern Pacific from a point several miles below St. Paul around that city to Minneapolis. With the diversion of the interchange business and that from Minneapolis and points north to points south of St. Paul this congestion will be largely relieved. It is expected that after this belt line is placed in service the only freight passing through the station will be that of the Omaha from the South and West for St. Paul and for interchange with other roads at that point, and freight local to the freight houses and team tracks and industries in the immediate vicinity of the Union station. Two tracks have been provided between the passenger tracks and those of the St. Paul road for these freight movements, crossing the three tracks leading to the southeast and the Northern Pacific tracks at the east entrance to the station at grade and connecting with the tracks of the Omaha a short distance south of Third street. The estimates of the cost of the new facilities contemplated in the plan of two years ago showed an expenditure of $15,000,000, or $4,000,000 more than the present plan, most of which was saved by the elimination of this grade separation work at the wye.

The plans for this project have been developed and the work will be carried out under the direction of W. C. Armstrong, chief engineer of the St. Paul Union Depot Company.

NATIONAL FIRE PROTECTION ASSOCIATION

The National Fire Protection Association, at its annual meeting in Washington, D. C., May 9 and 10, discussed a number of topics which are of interest to railway officers who have to deal with fire protection, among which were: Cost of City Water; Increased Use of National Standard Hose Couplings, and Fire Risks in Connection with the Transportation of Ammunition. On the last-named subject Col. B. W. Dunn gave an address impressing the members of the association with the views of progressive railroads in this matter.

The cost of water was the subject of an interesting discussion, a number of members bringing out the fact that cities and water companies often make unreasonably high charges for water supplied to railroads. The enterprising property owner who wishes to improve his fire risk and to assist the municipality in reducing fire losses finds that the prices put a penalty on progressiveness. There is a strong feeling that united action should be taken looking to an equitable disposition of this question.

In the use of hose couplings most railroads adopt, for their large plants, the standard of the city in which the property is located or to which it is adjacent. As promising progress is being made in the extension of the use of a national standard, favorable consideration was given to a proposal that railroads should join in the movement even if, in the case of cities which have not yet standardized their hydrant fittings, it should be necessary to use "adapters" for making connections. The railroads and the federal government ought to work together in this matter. The Railway Fire Protection Association has a committee on hose and hose couplings which is to report at the annual meeting next October.

Transporting Spanish Products to France. — A Franco-Spanish convention provides for the despatch of twenty freight cars daily to the Spanish frontier for the purpose of transporting Spanish products to France.

Carriers Present Evidence in Rate Case

Testimony on Behalf of Railways Completed. Hearing for Cross-Examination and Protestants' Evidence on May 23

THE presentation of the evidence of the railroads in support of their application for a general 15 per cent advance in freight rates before the Interstate Commerce Commission at Washington was completed on Friday, May 11. In accordance with the arrangement previously announced by the commission, the hearing will be resumed on May 23, at which time the railroad witnesses, or such of them as may be desired, will be recalled for cross-examination by the representatives of the shippers and of the state railway commissioners. Chairman Hall of the commission announced that the commission desired to hear the argument in the case on June 9, 11 and 12 and the time between those dates and May 23 was apportioned among the protestants after various conferences with Examiner-Attorney Watkins. Clifford Thorne, who is appearing in this case on behalf of the National Shippers' Conference, recently organized at Chicago, asked to have the argument postponed until about June 20, but Chairman Hall said the commission desired more time than that would allow before July 1 in order to reach its decision as to whether the proposed increase shall be suspended.

Under the arrangement that was made, three days will be allowed for cross-examination, five days for the presentation of evidence as to particular commodities by the shippers, two days for the presentation of evidence on behalf of the state commissions, three days for the presentation of general statistical data, which, it is understood, is to be under the general direction of Clifford Thorne for the purpose of presenting his analysis of the financial condition of the carriers. Two days will then be allowed for the carriers' rebuttal evidence. The commission has announced that the further hearing will be had at Washington, as nearly as may be, on the following dates and in the following order:

May 23-25. Cross-examination of the witnesses for the eastern, southern and western carriers, in the order named.
May 26. Representatives of stockholders of the Boston & Maine and of New England ice and coal shippers.
May 28. Shippers of live stock and grain.
May 29. Shippers in the southeast.
May 30. Lumber and fruit interests of the states of Washington and Oregon, North Pacific Coast shippers and representatives of shippers of brick, cypress lumber, and oil.
May 31 and June 1. Representatives of the state railroad and public service commissions.
June 2. Canning and other California interests, including citrus fruits, nuts and cream separators.
June 4-6. Witnesses presenting general statistical data.
June 7-8. Carriers' rebuttal evidence.
June 9, 11 and 12. Argument, separated as to the three territories and in the order that the testimony of the carriers was presented.

The commission requested that those proposing to attend the hearing will promptly so advise the secretary, giving the date or dates on which they expect to attend. The hearing room of the commission will seat about 160 people, and if more than that number will be in attendance, arrangements must be made accordingly in advance.

The testimony presented on behalf of the eastern and southeastern roads was reported in last week's issue. The first witness on behalf of the western roads was L. E. Wettling, statistician for the western lines, who presented and described an elaborate exhibit, making the combined statistical showing for the roads. The exhibit also included figures for individual lines. The principal features of this exhibit were mentioned in last week's issue. At the conclusion of Mr. Wettling's testimony, a number of the state commissioners asked that they be given access to the working sheets from which the exhibits were prepared in order that they might be more readily checked. Mr. Wettling agreed to furnish this information. Commissioner Clements remarked that Mr. Wettling's exhibits showed that a 15 per cent increase in freight rates would not be adequate to cover the estimated increases in operating expenses.

"I think they show that there won't be any core," said Mr. Wettling.

Commissioner Clements asked if it would then be necessary for the roads to ask another advance. The witness replied that he hardly thought so if business continued to increase and prices were readjusted after the war. Mr. Wettling estimated that the intrastate traffic not subject to the commission's jurisdiction in this case would amount to approximately 18 per cent of the freight revenue. Luther M. Walter, of Morris & Co., asked that the exhibits showing cost of road and equipment be supplemented by further statement showing the money that had gone into this account out of surplus earnings.

E. B. Boyd, chairman of the Western Trunk Line Committee, explained how the general 15 per cent advance would be affected by the agreement of the roads to preserve existing differentials and relationships. Under this agreement, he said, the advance cannot exceed 10 or 12 per cent of the freight earnings because if a rate to one city is now based on a differential of 10 cents over the rate to another city or territory, the 15 per cent would be applied only to the base rate and not to be differential. A large proportion of the rates in the western territory, he said, were made by the addition of differentials to basing rates and the plan of the carriers is to increase all rates 15 per cent on July 1, if permitted, and then to begin at once the work of revising the tariffs to preserve the existing adjustments. This, he said, would mean a revision of all the tariffs and it was hoped to have the work completed by October 1, but he was somewhat doubtful as to whether it could be completed within that time. Mr. Boyd said that rates involving conflicts between the state and federal authorities, like the Shreveport case, were not affected by the proposed increase.

J. M. DICKINSON

Jacob M. Dickinson, former Secretary of War and now receiver of the Chicago, Rock Island & Pacific, testified that the increase in the cost of operation was due to the great advance in all prices, in which the railroads were powerless to participate, or protect themselves against without the authority of the Interstate Commerce Commission. Mr. Dickinson said that a 15 per cent rate advance would fail by $725,000 of meeting the increased operating expenses on the Rock Island. The exhaustion and extravagances incident to war increase prices, he said; war withdraws men from the ordinary vocations of life, thereby increasing the demand for labor, and there is a corresponding increase in wages and the cost of material. As was said by

J. M. Dickinson

Mr. Cleveland about the tariff, it is a condition and not a theory confronting us. The emergency has existed for months, and is daily increasing in intensity. Frank Nay, comptroller of the Rock Island, supplemented Mr. Dickinson's testimony with some statistical information.

President Jenkins of the Merchants' & Miners' Transportation Company, and W. T. Kennedy, auditor of the company, testified that a 15 per cent increase in rates would no more than offset the deficit which the company is now facing.

R. H. AISHTON

The conditions surrounding the railroads, which they are trying to improve by an advance in freight rates, are the same as those that affect every other commercial activity, the government itself and the individual, R. H. Aishton, president of the Chicago & North Western, testified. These have been solved by commercial institutions, he said, by increasing prices to the consumer, and by the governments, municipal, state and federal, by increasing taxation, but for the transportation companies they present as yet an unsolved problem.

Mr. Aishton's statement was in the form of answers to the list of questions propounded to the carriers by the commission on May 1. In reply to the suggestion that dividends be limited during the war, he said the increased revenues derived from the proposed advance of 15 per cent will not offset the increases in wages, materials, supplies, and taxes, and there will therefore be no increase in net revenues that would be applicable to the dividend requirements of his company. The emergency now confronting the roads did not reach its present acute form, Mr. Aishton said, prior to January 1, 1917, although to all thinking men it was very clearly apparent that it was rapidly approaching. The larger advances in wages had not then been made, and materials that had been purchased under lower priced contracts were being used and an abnormal traffic throughout 1916 resulted in a good showing up to January 1, 1917.

Mr. Aishton estimated the increased expenses for his road for 1917 as follows:

Increase in wages on account of Adamson Law	$1,580,289
Increase in wages to other classes of labor	1,260,218
Increase in cost of fuel	2,167,202
Increase in prices of other material	4,790,126
Increase in taxes	483,473
Total	$10,281,308

A 15 per cent increase in the gross revenue from interstate business would amount to $7,967,532 and if a similar advance could be secured on state traffic the amount would be increased to $9,807,024, or less than the increase in expenses.

"In our opinion," he said, "the percentage increase in all freight rates will more nearly maintain the present relation in commercial conditions than any other method and has the additional advantage of affording relief quickly. In a case like that existing at the present time the speed with which the remedy is administered is nearly as important as the remedy itself."

Any decision as to when the emergency has passed, he said, in reply to one of the commission's queries, should depend on

(1) The resumption of normal labor conditions with a consequent decrease in labor costs.

(2) Return to normal price conditions of fuel and supplies, and

(3) When the credit of the railroads has been so established as to enable them to provide new capital to adequately provide themselves with cars, locomotives, signals, additional tracks, yard facilities, etc., to properly handle the growing business of the country.

"I do not understand that any claim for increased rates is predicated upon possible future expenditures on account of war conditions," said Mr. Aishton. "In the presentation of figures to the commission the results of the war to date are reflected simply in the increased demands for materials, absorption of labor and of capital, thereby bringing about in part the higher prices. It would be a wise man who could forecast the burdens which the war will impose upon the railroads, but there is one thing certain, the cost of handling transportation under these conditions is going to be greatly augmented. The railroads have agreed on the handling of equipment under a general committee which has the power to direct any action on the part of the individual railroads regardless of their income or commercial necessities."

Judson C. Clements of the Interstate Commerce Commission had been asking each of the railroad witnesses if the increased wages caused by the Adamson law could not all be offset by economies and changed methods of operation. When he put this question to Mr. Aishton he received a prompt answer. The speed of freight trains, Mr. Aishton said, can only be increased by reducing the tonnage per train, which would require more trains and more crews to handle the same amount of freight. This would increase expenses by an even greater amount than increased wages, while the running of additional trains would probably increase the congestion and the number of delays and slow up the entire movement. He said elaborate engineering studies had been made by the roads in the effort to find a way to offset the increased expense, but without success. His road had considered the relocation of terminals and gave it up because it was found that the location of division terminals was in most cases rather definitely determined by junction points and for fixed conditions and could not be changed except at prohibitive expense to the road, as well as to the employees who live and own homes at the present terminals.

R. H. Aishton

"Another way would be to speed up the trains," remarked Commissioner Clark. "Would that require a reduction in tonnage of your heavy through freights?"

"It would," replied Mr. Aishton, "but we found that the largest application of the Adamson law is not to the heavily loaded trains but to the way freight and switching trains which have short runs and are lightly loaded but make many stops. To reduce the tonnage of trains would simply require more trains to handle the same business."

"You have anticipated my next three questions," said Commissioner Clark.

Mr. Aishton said that trainmen on the North Western's suburban passenger trains running into Chicago that are actually in service for only about four hours a day and have the rest of the time to themselves between 6:00 a. m. and 7:00 p. m. get three hours' overtime, which increases their wages over those of men on through runs.

In testifying regarding increased cost of materials and equipment, Mr. Aishton said he had recently ordered rails for 1918 delivery and found it would be necessary to place orders very soon to get rails for 1919. The road had also recently ordered locomotives for 1918 which ordinarily would not have been ordered until September. During the past 10 years the North Western has spent $63,582,000 for new equipment and for that average of slightly over $6,000,000 a year had received an average of 4,000 freight cars, 94 pas-

senger cars and 94 locomotives. In 1917 for $6,444,000 it had received only 2,000 coal cars and 50 locomotives. The commission cannot allow the roads high enough rates to pay for this new equipment, he said, but it ought to allow rates high enough to enable the roads to pay the interest on the increased capital investment necessary to maintain an adequate supply of equipment.

Commissioner Clements asked Mr. Aishton another question he had been putting to most of the railroad witnesses, as to whether the high price of coal was caused by the car shortage. It is only partly responsible, Mr. Aishton replied, saying that he happened to be president of two coal companies owned by the North Western and, although they had had plenty of cars, their operating costs had gone up just the same as those of other coal companies. Besides the increase in miners' wages, the price of mules has increased from $150 to $300 since the war, powder costs more and timber used for props has gone up in price.

It was arranged that the railroads should file with the commission data from the reports of the engineers who investigated possible ways of offsetting the cost of the Adamson law by changes in operating methods.

JULIUS KRUTTSCHNITT

Julius Kruttschnitt, chairman of the Southern Pacific, testified before the commission on May 11. In explaining the need of emergency relief to enable the railroads to meet the increasing expenses, he said in part:

The recent action of the carriers in creating a special committee on national defense contemplates the subordination of railway traffic and facilities of all roads to the preferred needs of the government. The demands for food products of all kinds and the demands for shipment abroad will tax the resources of all carriers and they are so urgent that they must be complied with regardless of expense.

Travel will be curtailed and freight handled at full commercial rates will have to give way to government business handled at less than commercial rates and under conditions which will involve increased costs. The movement of troops usually involves a one-way haul of empty equipment, and it is estimated that both troops and freight of the United States government are handled over western roads at an average of about one-third less than the rate applicable to commercial business. The gross revenue on government business will be materially less than on the same volume of commercial business.

Julius Kruttschnitt

Mr. Kruttschnitt said that for 20 years there had been a constant rise in all commodities except transportation, the price of which had actually declined. During the past few months, and especially since the beginning of the year, this situation had become a serious menace to railroad solvency.

Constantly increasing commodity prices, he said, have increased the cost of living for the railroads just as they have done for individuals. They have reflected themselves in increased wages, made necessary to enable railroad employees to buy that which they individually consume, and an increased cost in all materials and supplies which the railroads themselves consume. The combined effect of falling rates for transportation and the falling purchasing power of the dollar has been to reduce greatly the contribution to net earnings and return on investment yielded out of each dollar paid by the public for transportation service.

Universal bankruptcy has been avoided by the carriers only by heavy capital expenditures to reduce grades, eliminate curvature and purchase heavier locomotives and cars, all incurred for the purpose of increasing efficiency in train movement by hauling more tons per locomotive. The opportunity to offset these increasing costs by economies in operation has been largely diminished; in other words, cars and locomotives are about as large as can be constructed within clearance limits. Certain it is that to whatever extent the railroads might have been able to arrest the continued tendency toward increased cost of labor and material by new operating methods, it is impossible for them to offset the abnormal increases in operating costs which now confront them.

New capital for railroad development, said Mr. Kruttschnitt, was increasingly difficult to obtain because of the diminishing return on the investment.

"There has been no time in recent years when the credit of the world has been so strained," he said, "as it is today, and the ability of the railroads to procure capital for necessary improvements with which to meet the growing demands of commercial and government transportation should be strengthened rather than impaired. There is no question that capital expenditures for much needed second tracks, yards and terminals and motive power have been deferred on many lines during the past few years, because of financial difficulties, and, latterly, because of high prices for materials and equipment. This accounts in part for the congestion of the past two years. It is perfectly obvious that such expenditures cannot longer be deferred."

In the absence of Commissioner Clements, Commissioner Meyer asked Mr. Kruttschnitt about ways of offsetting the effect of the eight-hour law. Mr. Kruttschnitt replied that the suggestion that division terminals be changed is not practical, partly because of the very large expense and partly because in the west, at least, division points are determined to a large extent by the location of water for the locomotives. One way of offsetting the effect of the law, he said, would be to get service from the employees for all the time the railroads pay them for. He explained that speeding up the trains would not accomplish the result because no way had been found to make the locomotive haul as much at a speed of 20 miles an hour as it could at 15 miles an hour. Commissioner McChord asked the witness how the roads are going to manage even with a 15 per cent increase in rates if that amount would not meet the increased expenses since they were unable to provide sufficient facilities to handle the traffic under the old prices. Mr. Kruttschnitt replied that the increase would simply continue the roads in their former condition without improving it.

W. B. BIDDLE

In the case of the St. Louis-San Francisco Railway the evidence that an emergency exists that justifies the granting of increased rates is the fact that the costs over which the company has no control have increased at a rate which applied to the business for the calendar year, 1916, shows an increase of more than $7,000,000 per annum, while the rate of compensation has remained practically the same, said W. B. Biddle, president of the Frisco, in his testimony before the commission.

This increase in expenses, which includes only those which are known and are now in effect, amounts to 16 per cent of the gross revenue of the road for 1916, and is still rising, he said, and together with other increases which are threatening will, it is believed, be equivalent to 18.3 per cent of the gross freight earnings. On the other hand, the proposed increase in rates would not exceed 10 per cent of the freight

earnings because of the application of the differential adjustments which the roads have agreed to observe. This would give an increase of only $2,880,000 on interstate traffic on the basis of the year ending June 30, 1916, to which would be added such advances as may be secured from the various states, making a total of $3,600,000 if the same percentage of increase is obtained on state traffic.

Most of the railroads in the southwest are in receivers' hands, Mr. Biddle said.

All of the trunk lines operating in the southern half of the state of Missouri, with the exception of the Kansas City Southern, whose mileage is negligible, are now in the hands of receivers, with the single exception of the St. Louis-San Francisco which has just emerged from receivership.

All of the trunk lines in southern Kansas, with the exception of the Kansas City Southern, whose mileage is negligible, the Santa Fe and the Frisco are in the hands of the receivers.

All of the trunk lines in the state of Arkansas, with the exception of the Cotton Belt, Frisco and Kansas City Southern, whose mileage is negligible, are also in the hands of receivers.

All of the trunk lines in Oklahoma, with the exception of the Santa Fe and the Frisco, are in the hands of the receivers.

All of the trunk lines in the state of Texas are or have been in the hands of receivers within the past few years, with the exception of the lines of the Southern Pacific and the Santa Fe, while in Louisiana the Iron Mountain, Rock Island, Texas & Pacific and New Orleans, Texas & New Mexico are in the hands of receivers or have just emerged therefrom. Receiverships have been the rule in this territory.

Mr. Biddle's statement was prepared in the form of an answer to the questions submitted by the Interstate Commerce Commission to the roads on May 1.

This emergency is one that can only be relieved by an increase in rates, he said. It affects all carriers, but it does not necessarily affect them all in exactly the same manner nor to the same degree. The relief should be granted by a percentage increase, first, because it is not only the fairest, but also the most practical method of increasing the rates; second, because rates are supposed to be and, generally speaking, are, fairly adjusted with reference to the other insofar as such relation can be determined. This being true, a percentage increase results in each class of traffic bearing its fair proportion of the added burden. Third, because it is the only way by which the decision of the commission can be made effective within a reasonable time. The increase should not be less than 15 per cent because the evidence shows that even that proportion will not overcome the increased costs created by the emergency.

The causes contributing to the emergency are: First, the well known fact that railroad facilities have long been inadequate as to terminals, passing tracks, power and equipment; that net earnings have long been insufficient, even under so-called "normal conditions," to enable the carriers to provide the needed facilities and to give adequate and satisfactory service; that even before the present emergency, the margin of safety was steadily diminishing, as was clearly demonstrated in the western advance rate case.

Second, aside from the foregoing, the principal factor has been the conditions, either direct or indirect, growing out of the European war and now accentuated by our own state of war.

In enumerating the increased expenses to which the road is now subject, Mr. Biddle said that the Adamson act has increased the pay roll of the St. Louis-San Francisco at the rate of approximately $1,000,000 per year, the actual increase for the three months ending March 31 being $233,877. The wages of other employees have increased at the rate of $1,000,000 per annum.

"I wish to call attention," Mr. Biddle said, "to the fact that the increase on account of the Adamson law is only about 13.8 per cent of the total increase in costs that the St. Louis-San Francisco is now facing. The other increases are $1,000,000 on coal and $4,233,000 on purchases of other supplies and materials, making a total of $7,233,000.

"Operating revenues will be affected unfavorably during the war to the extent that the roads are called upon to transport government forces and material, the government rate of pay for passengers being about 57 per cent of the commercial rate and for freight about 62 per cent. The reduction from the commercial tariff rate is caused by the land grant deductions. Expenses will necessarily be increased also by the special service required not only on all business for the government itself, but on all material required by manufacturers supplying the government, or, to put it broadly, by handling the business with one object only in view, namely, service to the government regardless of cost."

W. B. Biddle

As illustrating some of the increases in prices, he said the company bought freight locomotives in February, 1916, for $36,750 each. Later in the year it had to pay $51,000 each for the same type of locomotives, and in February of this year when inquiry was made for additional locomotives of the same kind the company was told that the lowest price was $69,750. The company has bought no new freight cars since prior to the receivership because the cost has been prohibitive.

"If the St. Louis-San Francisco Railway had alone been involved in this application for increased rates," said Mr. Biddle, "we should have asked for a not less than 20 per cent, and should the relief granted by this commission after a fair trial prove inadequate we shall certainly feel at liberty to again appear before this commission and ask for further relief."

Mr. Biddle was asked a number of questions regarding the recent reorganization of the Frisco. Commissioner Meyer called attention to the fact that its capitalization was now considerably greater than that of the North Western and asked Mr. Biddle if he thought his road was worth more than the North Western. He replied that he did not, and in reply to a question, admitted that the increased capitalization represented one of his burdens. Chairman Hall asked if he thought the Frisco ought to have rates which would pay a return on $62,000 per mile. Mr. Biddle replied that he did not ask that much. Another commissioner asked why the capitalization of the road had been increased by $35,000,000 during the reorganization when only $25,000,000 of new money had been invested in it. Mr. Biddle said that the increase was partly due to the exchange of income bonds for interest-bearing bonds, which had reduced the fixed charges of the road.

Closing the case for the western lines, Charles B. Donnelly, general solicitor of the Northern Pacific, said that the roads had tried to present representative witnesses who would illustrate the entire situation of the western roads as well as it could be done in the time available and that evidence had been presented on behalf of strong as well as of weak roads, but that if the commission should desire to hear any other witnesses or to have any additional data, the roads

would be glad to comply. Regarding the suggestion as to dividend limitation, he said the carriers were in doubt whether the commission intended to ask whether the carriers contemplated increasing their dividends or were willing to reduce them below present rates. He said that neither he nor the presidents were authorized to speak on that subject because it was a matter for the boards of directors, but he was authorized to say for the western roads that their application for an increase in rates was prompted solely by a desire to meet the greatly increased operating expenses and that nothing was farther from the thoughts of the officers and directors than any idea of increasing payments to stockholders by means of the increase in rates, except that some roads which are not now paying any dividends hope they may be able some time to pay something. R. Walton Moore, representing the southern lines, endorsed what Mr. Donnelly had said.

At the conclusion of the testimony and while the plans for the next hearing were being discussed, A. E. Helm, representing the Kansas Commission, asked that witnesses be produced that could testify regarding financial conditions of the Northern Pacific, Chicago, Burlington & Quincy, Great Northern, Union Pacific, Atchison, Topeka & Santa Fe and Missouri Pacific. After Mr. Donnelly said that the roads were willing to do anything the commission wanted, and after some discussion it was decided that detailed answers should be filed to the list of questions submitted by the commission on May 1 by the Union Pacific, Burlington, Soo Line and Northern Pacific or Great Northern for the western group, and by the Louisville & Nashville, Illinois Central, Atlantic Coast Line and Cincinnati, New Orleans and Texas Pacific for the southern group. No requests were made for additional testimony on behalf of the eastern lines.

J. Van Norman, representing the Southern Hardwood Traffic Association, called attention several times during the hearing to the fact that no testimony had been presented for the Louisville & Nashville and Illinois Central. Mr. Moore said that if all the southern roads were in as favorable condition as the two mentioned, the roads probably would not be asking for higher rates. Mr. Van Norman finally filed a formal request that Milton H. Smith, president of the Louisville & Nashville, be requested to testify and Chairman Hall said the commission would be glad to hear from him.

Earlier in the proceedings the commission had directed the carriers on the motion of Luther M. Walter to file statements showing the extent of their proprietary interest in coal mines and oil wells, from which their fuel supply was drawn. Several roads had been asked to furnish copies of their coal contracts. At the conclusion of the hearing Mr. Thorne called attention to the fact that the different roads had shown widely different prices for coal and different amounts of increases and asked that a complete statement be filed showing the contract prices and tonnage and character of the coal for three months of this year as compared with last year's prices. It was decided that this should be furnished for a certain number of representative lines in each territory. Mr. Thorne also asked for a statement showing the securities sold within the last ten years, the amount, the rate of interest or dividend, and the gross amount realized and the net proceeds, less commissions. This will be furnished for 20 western roads and representative lines in the east and south. Mr. Thorne then asked for a statement showing the ownership in companies furnishing railroad supplies by railroads or any of their officers and directors. The commission took this request under consideration to determine how much work would be required to comply with it and whether it would be helpful to the commission.

The Interstate Commerce Commission has denied the petition filed by the anthracite carrying roads in connection with this case, for relief from the order issued by the commission last year in the anthracite rate case and for permission to substitute new rates advanced from 5 to 25 cents per ton. After the petition had been denied the roads asked that the original case be reopened.

The commission has also denied the petition for a vacation of its order suspending the proposed increase of 15 cents per ton in the rates on ex-lake iron ore.

The lines operating on the Great Lakes asked and were granted permission to file statements in support of their application for an advance in rates corresponding to that asked by the railroads.

The commission has allowed the carriers to withdraw the tariffs that have been suspended by the commission in 34 I. & S. cases so that the proposed 15 per cent advance may be applied to the old rates, and it has authorized the postponement to January 1 in 13 other cases.

The commission on May 15 issued a notice describing the additional information desired from the roads as follows:

In addition to matters covered by request made in connection with the testimony of the witnesses already heard, the commission expects carriers to file and furnish to the parties whose appearance has been entered the following information as speedily as possible, so as to be available upon resumption of the hearing on May 23, 1917.

1. Responses to the commission's memorandum of questions dated May 1 from some executive officer of each of the following roads: Union Pacific, the Burlington, the Soo, and either the Northern Pacific or the Great Northern. In the Southern District: Louisville & Nashville, the Illinois Central, the Atlantic Coast Line, and the C. N. O. & T. P.

2. The 38 carriers of the eastern district and the 22 of the southern district named in the general exhibits of those districts, and the 20 carriers named at p. 11 of the Wettling exhibit are expected separately to file statements giving a list of fuel contracts entered into or in effect since January 1, 1917; and giving as to each contract the parties, the date, the period covered, the source, kind and quantity of the coal or oil, the price per unit, *i. e.*, of 2,000 lb. for coal or per barrel for oil, and, if on a sliding scale, the terms thereof. Each of such carriers will also state the number of coal mines and oil fields owned or operated by it, where located, and the kind, quantity and cost per unit of the coal or oil produced therefrom since January 1, 1917. Also, the weighted average per unit of the price paid for fuel, and separately the weighted average per unit of the cost of producing fuel, and the kind and quantity bought or produced during the calendar year 1916.

3. For each of the carriers referred to in paragraph 2 hereof and its predecessors, a statement of stocks, specifying whether common, preferred, or other, and of bonds, debentures and other interest-bearing obligations issued or guaranteed since January 1, 1907, the date and amount of the stocks or obligations sold, the amount in money realized from each sale, and the rate of interest of the interest-bearing obligations.

4. For each of the carriers referred to in paragraph 2 hereof: Disregarding purchases under $50,000 from any one concern, is your railroad company as a corporation, by stock ownership or otherwise, including interlocking directorates or officials in common, or any of your general officers, or any of your directors, or any of your purchasing agents interested in any of the concerns from which your company since January 1, 1916, has purchased equipment, rails, ties, lumber, structural bridge or similar structural material or lubricants?

If so, in what way? State fully.

To what extent is care taken to secure competitive bids or prices that will be of maximum benefit to your company?

What rules or practices are followed by your company in purchasing materials and supplies, or contracting for the same?

Answer same inquiries as to coal and other fuel.

Give the prices paid, contracts made, or bids submitted for articles itemized above, from January 1, 1917, to date, as compared with prices for same articles in the same period of 1916.

ROLLING STOCK FOR RUSSIAN RAILROADS.—The Petrograd Telegraph Agency states that by reason of the extension of the Russian railroad system and the existing necessities of transportation the present rolling stock is more and more inadequate. In the last years of peace there were constructed on an average 1,300 locomotives and 30,000 freight cars per year for the Russian railroads. In accordance with a proposal of the Ministry of Ways of Communication, the Council of Ministers has decided to appropriate 12,642,000 rubles ($6,511,000 at the normal exchange rate of $0.515 to the ruble; the current quotation is $0.275) for the construction of a government freight-car works. In addition, to stimulate the production of the private freight-car plants already existing, the government has agreed to advances to the amount of 40,000,000 rubles ($20,600,000 at the normal exchange rate). Finally, the Ministry of Ways of Communication is to bring forward at the earliest possible date a project for the construction of two other plants, one for freight cars and the other for locomotives.

WILLIAM H. BREMNER

William Hepburn Bremner has been elected president of the Minneapolis & St. Louis, as was announced in the *Railway Age Gazette* of May 11. Mr. Bremner is well qualified for this position both by experience and training. Although most of his professional career has been devoted to the practice of law, and he has a degree of LL.D. from the University of Iowa, he also graduated from the civil engineering course of the same school, receiving the degree of C.E. Practically all of his railroad experience has been with the Minneapolis & St. Louis, with the result that he is thoroughly familiar with the company, the affairs of which he has been called upon to direct, combining the points of view of the engineer and the attorney. As a man of two professions he is following in the steps of his father, who, for many years previous to his death, was city engineer and county surveyor at Marshalltown, Iowa, and previous to that was a member of the bar and engaged in the active practice of law for a number of years.

Mr. Bremner's first railway experience was as clerk in the general offices of the Iowa Central, now a part of the Minneapolis & St. Louis, at Marshalltown, Iowa. While studying engineering at the University of Iowa, he spent his summer vacation in 1889 assisting in the surveys for the extension of the Chicago, Burlington & Quincy from Old Monroe, Mo., to St. Louis. After receiving his degree in engineering, he was employed in the engineering department of the Chicago, Burlington & Quincy for a period of about two years, first having charge of heavy line changes near Ottumwa, Iowa, and later doing more or less general work in Illinois.

W. H. Bremner

Following his graduation from the law department of the university in 1895, he engaged in the practice of law at Des Moines, Iowa. In 1902, he was made city solicitor, holding that position for a period of six years. During this time Mr. Bremner practiced in all state and federal courts, and also appeared before the Supreme Court of the United States, whose records will be found to contain a number of cases where his name appears as one of the attorneys actively in charge of the litigation involved. His experience in cases involving questions of taxation, franchise, rights, powers and duties of public utilities and corporations, fitted him for the place he was called upon to fill when appointed general attorney of the Minneapolis & St. Louis in 1909.

As general attorney he has devoted much of his time to the defense of personal injury suits, a task of no small magnitude to railroads operating out of the Twin Cities because of the way in which personal injury litigation against railroads has been systematically centralized there. After becoming general solicitor in 1913, and until the time of his election as president, Mr. Bremner exercised active control over all of the legal affairs of the company. During that time he appeared as counsel of the road in important cases involving rates in the territory served by the Minneapolis & St. Louis, appearing frequently before the commissions of the various states through which the road operates and also before the Interstate Commerce Commission. His experience in these cases has given him an excellent insight into the traffic side of transportation as well as into the relation of operating costs to rates.

He combines a pleasing personality with the force of character of a successful executive and enjoys the friendship and enthusiastic support of all employees of the road. He has a most extensive acquaintance among all classes of people whom the road serves in the performance of its duties as a public carrier, and as an engineer and lawyer has a thorough knowledge of the property as well as its finances. Mr. Bremner is a man of rugged physique and as a student in college was captain of the football team.

Mr. Bremner was born at Marshalltown, Iowa, on October 24, 1869. He was graduated from the University of Iowa in 1891 with the degree of C. E., and in 1895 with the degree of LL.D. On July 1, 1909, he entered the service of the Minneapolis & St. Louis as general attorney and was promoted to general solicitor three years later. In 1916, when the office of general counsel was re-established, he was appointed to that office, continuing to discharge its duties until his appointment as acting president in April, 1917, and his election to that office in May, 1917. As president, he succeeds E. L. Brown, recently resigned on account of ill health.

NEEDLESS BRAKEMAN BILL

This is the name that a correspondent uses in describing a "full crew" bill which has been introduced in the legislature of Texas, at the request of James E. Ferguson, Governor of the State, and which has already been favorably reported by the Labor Committees of both Houses. The proposed law requires that there shall be three brakemen on every train of more than 60 cars.

The General Managers' Association of Texas, C. G. Elliott, chairman, has issued a circular informing the public and the legislators of the vicious character of the bill; and in connection with the arguments presented cites some facts tending to show the relative safety of train movements in Texas. The circular says, in part:

"The advocates of the proposed so-called 'full crew' measure claim that a third brakeman is necessary on all trains of over 60 cars as a measure of safety. During the year 1916, 336,251 freight trains were operated by Texas railroads, of which approximately 16.5 per cent (local freight trains) had three brakemen each, and the other 83.5 per cent two brakemen each.

"Sworn reports to the Texas railroad commission show that these trains were involved in a total of but 15 rear collisions, an average of one collision to every 22,416 trains. Included in these were minor accidents which resulted in no damage or injury. Rear collisions are the accidents which the advocates of the proposed measure say will be avoided by

the employment of a third brakeman. In five of the 15 collisions mentioned, the head train was manned by three brakemen. None of the accidents would have been avoided by the employment of an extra brakeman.

"Loss of life resulted in but one of these collisions. In this a train consisting of an engine and three cars was run into by another train consisting of an engine and a caboose. In 12 months of 1916, 20 of the railroads of Texas, including the principal lines, ran 35,154 trains, of 50 cars or more, on each of which there were employed but two brakemen. There were 61 accidents of every character to these trains, an average of one accident for each 576 trains.

"During the same period the same railroads operated 270,575 trains of less than 50 cars each, on approximately 50,780 of which three brakemen were used. These trains met with 508 accidents—an average of one accident for 532 trains. The explanation of the proportionately fewer accidents to trains of over 50 cars to those of less than 50 cars is, that the longer trains can only be operated on low grade, well ballasted track, with heavy rail, which combination greatly enhances safe operation.

"So-called 'full crew' measures were introduced during 1914-15 in the legislatures of 20 states, not one of which was enacted into law. In none of the few states in which 'three brakemen' laws have been enacted, has the contention that increased safety in operation would result, been borne out. On the contrary, it has been found that compliance with such laws is involving needless expense. * * *"

One member of the Senate Labor Committee presented a vigorous minority report, declaring the proposed law unnecessary, unjust and undemocratic, and an unwarranted favor to a special class already munificently favored by Act of Congress.

WASHINGTON CORRESPONDENCE

WASHINGTON, D. C., May 15, 1917.

PRESIDENT ASKS POWER TO DETERMINE PRIORITY OF SHIPMENTS

President Wilson, in letters to the chairmen of the House Committees on Interstate Commerce and on the Judiciary on Tuesday asked Congress to give him authority, which may be delegated to a transportation commission, or commissioner, "to direct that certain kinds of traffic or particular shipments, as may be determined by him, shall have preference or priority in transportation" by rail or water, during the war; and a joint resolution conferring such power was introduced in the House by Chairman Webb of the Judiciary Committee. The president in his letter recognizes what the railroads have already done, but says that the exercise of such power by some central authority has become imperatively necessary to avoid embarrassment caused by conflicting demands of different departments of the government or different branches of traffic.

The resolution provides that the president may direct the exercise of the powers conferred by any department or agency of the government, or by any person whom the president may appoint as commissioner; or by any person or persons, not to exceed five, whom he may appoint as a commission on transportation. Any act done or omitted to be done by any carrier necessary to comply with such direction shall not be a basis of any criminal or civil liability. The president says: "This resolution would cause no friction; indeed it would remove it. I have not asked to have a penalty prescribed, because I had in mind the provision in the army act of August 29, 1916, empowering the president, in time of war to take possession and assume control of any system or systems of transportation, etc. I assumed that this furnished sufficient sanction if sanction were needed, as I think it would not be."

HOUSE PASSES CAR SERVICE BILL

The House of Representatives on May 9 passed without a roll call, but after considerable debate, the bill introduced by Representative Esch of Wisconsin, H. R. 328, conferring jurisdiction on the Interstate Commerce Commission over the subject of car service, which is defined to include the exchange, interchange and return of cars used in the transportation of property by any carrier, subject to the act to regulate commerce. The bill has been advocated and is understood to have been drafted by the Interstate Commerce Commission. A similar bill is in the hands of a sub-committee of the Senate Committee on Interstate Commerce, of which Senator Pomerene is chairman. The bill amends the present act wherever necessary to include car service under its jurisdiction so as to give the commission the same control of rules and regulations relating to car service that it now has over rates, and also contains an emergency clause giving the commission very broad powers.

It is provided that carriers shall file with the commission all rules and regulations with respect to car service, including the classification of cars, the compensation to be paid for the use in car service of any car not owned, and the penalties or other sanctions for non-observance of such rules, regulations and practices. Every common carrier subject to the act would also be required to file with the commission copies of all contracts, agreements or arrangements with other common carriers in relation to any traffic affected by the provisions of the act to which it may be a party.

The emergency clause provides that "whenever the commission shall be of opinion that an emergency exists in respect of the supply or use of cars for transportation of property, the commission shall have, and it is hereby given, authority, either upon complaint or upon its own initiative without complaint, at once, and, if it so orders, without answer or other formal pleading by the interested carrier or carriers, and with or without notice, hearing, or the making or filing of a report, according as the commission may determine, to suspend the operation of any or all rules, regulations, or practices then established with respect to car service for such time during the continuance of the emergency as may be determined by the commission, and also authority to make such just and reasonable directions with respect to car service, or for the distribution and movement of cars for the transportation of particular commodities or for the transportation to or from particular localities during the emergency as in its opinion will best meet the emergency and promote operation of car service in the interest of the public and to the advantage or the convenience and commerce of the people." It also provides that the directions of the commission as to car distribution and movement during emergency may be made through and by such agents or agencies as the commission shall designate and appoint for that purpose. There was some discussion in the debate as to whether this last provision was intended to authorize the commission to act through its subordinates or whether it was intended to authorize it to delegate power to such a body as the Car Service Commission of the American Railway Association. Representative Mann of Illinois said he understood the purpose was to permit an organization of railroad officials to act as agents of the commission.

The penalty clause is as follows: "In case of failure or refusal on the part of any carrier, receiver, or trustee to comply with any direction or order with respect to car service, any regulation adopted and promulgated or any order made by the commission under the provisions of this section, such carrier, receiver, or trustee shall be liable to a penalty of $500 for each such offense, and $25 for each and every day of the continuance of such offense, which shall accrue to the United States and may be recovered in a civil action brought by the United States."

Representative Esch made a long speech on the bill and

was interrupted frequently by questions from various members. The remarks would indicate that most of those who discussed the bill have gained the impression that its passage would afford a panacea for all of the various sources of complaint in connection with the distribution of cars, although one or two representatives thought it was not entirely complete because it does not anywhere provide for the building of cars. Representative Mann recognized another important prerequisite to complete satisfaction when he said that it will take more than orders made by the Interstate Commerce Commission to move cars promptly. "If talk would move cars," he said, "we would move them rapidly, and if issuing orders would move cars they would be moved rapidly by the Interstate Commerce Commission. You may pass laws and then more laws, but that will not cure the situation until you give the railroads an opportunity to have money enough to buy sufficient motive power, and the reason there is not sufficient motive power promptly to move them is because the railroads have not the money or the credit."

Representative Mann and others objected a little also to giving the commission such broad powers to act without hearing in case of an emergency. Representative Brumbaugh said that the railroads are using cars for storage houses and there ought to be some authority to compel them to unload cars. Mr. Mann pointed out that it is the shippers and consignees that use the cars for storage and that how soon they will unload cars will depend on how much it costs to keep the freight in the car. Representative Mondell said that the difficulty is caused by slow movement of freight trains and that the railroads are loading trains so heavily in order to move freight economically. He thought that perhaps the commission should be given authority to fix a minimum speed per hour, but said that if the present freight rates are fair then they must be increased if the country is to demand more rapid movement because more rapid movement costs money.

A Bill to Require Suspension of Increased Rates

Senator Smith of Georgia, who has been conducting a very energetic campaign in the newspapers and in the Senate against the proposed increase in freight rates, on Monday, May 14, introduced in the Senate a bill, S. 2268, to amend section 15 of the act to regulate commerce by striking out the words "providing that the commission *may* suspend the proposed increase in rates" and by substituting a provision requiring the commission to suspend in the event of a protest against a new rate. In explaining the bill, the Senator mentioned only that it seeks to change the present law so that where an application for an increase of rates is made and that application is protested, hearings shall be had before the rate goes into effect, but the language provides that "pending such hearing and the decision thereon, the operation of such schedules *shall* be suspended and the use of such rate, fair charge, classification, regulation or practice, shall be deferred."

Proposed Railway Legislation

Other bills and resolutions affecting railways that have been introduced in Congress include:

H. R. 4,023, by Mr. Jacoway. To Committee on Interstate and Foreign Commerce. Authorizing the President to requisition and operate railroads or steamship lines whenever he deems it necessary for the national security and defense.

H. R. 4,205, by Mr. Hamilton. To Committee on Interstate and Foreign Commerce. To amend the pass provision of the interstate commerce law to permit the issuance of free transportation to enlisted members of the Army, Navy and Marine Corps traveling at their own expense.

H. R. 4,030, by Mr. Hamilton. To Committee on Interstate and Foreign Commerce. Providing that carriers shall collect all freight charges within 90 days.

H. R. 79, by Mr. Howard. To Committee on Appropriations. Directing the Federal Trade Commission to investigate trade conditions in the United States. Paragraph E requests the commission to inform the House whether prices for materials and supplies used by railroads are generally reasonable and whether the profits on these articles are in proper relation to their cost.

H. R. 4,125, by Mr. Lever. The Administration Food Bill, in section 10 would authorize the President to take charge of the movement of all foodstuffs and require the railroads to obey all orders of the Interstate Commerce Commission affecting such transportation under penalties.

S. J. Res. 58, by Mr. Gore. To Committee on Agriculture and Forestry. To give the President power to direct the movement and operation of freight cars.

Special Committee on National Defense

Plans for obtaining the co-operation of shippers in the efforts of the railroads to increase transportation efficiency during the war were discussed at a conference at Washington last week between the Executive Committee of the American Railway Association Special Committee on National Defense and a committee representing the National Industrial Traffic League. It was arranged to have a committee appointed to represent the shippers in co-operation with the railroad committee. Conferences have also been held at Washington between the railroad committee and lake cargo coal operators for the purpose of formulating plans to have coal shipments pooled in order to secure the greatest efficiency in transportation of coal on the lakes so that it will not be necessary for a boat to go out lightly loaded or to be delayed on account of the non-arrival of any particular shipment or grade of coal. The coal operators have been holding meetings also in connection with the committee on coal production of the Council of National Defense.

The special committee on lake shipments appointed by the committee on coal production presented a report on Tuesday, which was approved, for the pooling of coal shipments passing through Great Lake ports to the head of the lakes. All coal shipments to nine lake ports are placed under the control of a central executive committee consisting of three representatives of lake coal shippers and two representatives of docking companies. The railroads will be represented in their dealings with the pool by a special commissioner. It is hoped through consolidating lake cargoes to avoid waste caused by the existing practice of holding cargoes and vessels for accumulation of individual cargoes and thus increase the capacity of the railroads and vessels to carry additional coal to the head of the lakes and bring back iron ore. The committee estimates the plan would reduce individual consignments from 800 to less than 120 and shorten the period during which coal cars are detained at lake ports from three and a half to two days.

In addition to the sub-committees of the American Railway Association Special Committee on National Defense, mentioned in our issue of April 20, a committee on materials and supplies has been appointed consisting of W. E. Hodges, vice-president of the Atchison, Topeka & Santa Fe; F. W. Mahl, director of purchases of the Southern Pacific; W. H. Meyers, vice-president of the Pennsylvania Railroad; H. B. Spencer, vice-president of the Southern Railway; J. W. Taylor, assistant to the president of the Chicago, Milwaukee & St. Paul, and George G. Yeomans, purchasing agent of the New York, New Haven & Hartford.

Plans for the curtailment of passenger service by the elimination of the necessary trains and by the rearrangement of duplicated competitive service in order to promote the more efficient operation of freight are being worked out by the department committees of the Special Committee on National Defense located in the various departments into which the army is divided. A number of roads have already announced plans for curtailing their passenger service.

Railway Fuel Association Convention

Report of Opening Sessions of the Ninth Annual Convention Held at Chicago the Early Part of This Week

THE International Railway Fuel Association met at the Hotel Sherman, Chicago, on May 14 for the ninth annual convention. W. H. Averill, Baltimore & Ohio, presided. Rev. Reginald I. Raymond delivered the invocation. In his address Mr. Averill spoke of the importance of the work of the association at this time and urged that definite action be taken so that as a result of the convention economies in the use of fuel might be put into practice at once wherever possible.

AN APPEAL FOR FUEL ECONOMY

At the opening sessions an appeal was made by the association to coal operators, coal miners, railroad officers and employees to increase the fuel supply of the country and eliminate waste in the use of fuel. It is given below in full.

"All consumers of coal—railroads, industrials, public utilities and individuals—are confronted with an extraordinary measure of difficulty in their attempts to secure an adequate supply of fuel.

"The President in his special message to Congress appealed to the miner, to the men who run the railroads of the country, to the managers of industries and to direct consumers to conserve the resources of the country to the fullest possible extent.

"The American Railway Association's Special Committee on National Defense has issued an appeal to all of the railroads of the country to conserve their motive power, to avoid waste of fuel, to increase car efficiency and to obtain maximum train loading.

"The members of the International Railway Fuel Association in convention assembled realizing the gravity of the situation as regards fuel supply and further realizing the possibilities of increasing the supply by the concerted action of mine operators, miners and the railroads, as well as the immediate possibility of eliminating waste in the use of fuel offers the following suggestions:

"To Railroad Operating Officers.—Insist that all yardmasters, trainmasters, and car distributors make a thorough canvass of every yard and side track daily for coal cars, loaded and empty.

"Insist that all repair yard foremen repair the maximum number of coal cars daily giving coal cars, loaded and empty, preference over all other classes of equipment when making repairs.

"Insist that agents notify the consumers personally to unload daily the maximum number of coal cars.

"Insist on carrying out the instructions to confine the use of coal cars to coal and ore traffic.

"Move coal cars to the mines as rapidly as practicable. Place coal cars so they can be loaded the same day on which they are received. Revise the rating of the mines that hold cars over for loading on succeeding days. Impress every division officer and employee with the weight and importance of the fuel problem. Arrange for staff meetings for the discussion of this problem on each division.

"In a word, give coal the preference that the Railroad Committee of the National Council of Defense has requested.

"To the Coal Operator.—Call your mine and office employees together in mass meeting and tell them of the problem that confronts our country. Recall the President's appeal for service, which places the work of the miner equal in importance to that of the soldier who enlists for actual fighting and urge the maximum individual return in production.

"When necessary to complete the loading of cars assigned on certain days to any mine or mines, extend the working hours and provide an adequate compensatory return.

"When cars placed at the mines contain refuse or need body repairs, clean them out and make the necessary repairs, if possible, so that the cars can go forward without the delay which would be required to switch cars back to the railroad repair tracks. Load every car to 110 per cent of its stenciled capacity, if possible, otherwise load every car to its full visible capacity.

"Circularize your customers, urging co-operation with the delivering railroad in the matter of prompt unloading of cars. Urge them to waive the free time allowance shown in tariffs and to unload all cars as quickly as possible.

"To National, State and District Mine Labor Officers.—Send some representative of your organization to every coal mining community to address the members of your labor organization, impressing on them that their duty to the Flag is clean cut and, as defined by the President of our country, no less important than that of the man who wears the khaki. Urge every man to increase his daily output of coal, foregoing holidays and vacations. Where disputes as to wages or conditions arise, see that work is not suspended but that the lawful machinery of your organization is employed in settlement. Urge all mines to load only clean coal. Explain that refuse matter with the coal takes up car space and when fired increases the fuel consumption, creating a waste of fuel and labor, destroying the efficiency of the locomotive.

"To Railway Employees.—It is the duty of engineers and firemen to strive more than ever to put into daily practice those principles of efficient engine running and firing that will give the most power with the least expenditure of fuel and to report all engine or boiler conditions that cause a waste of fuel.

"It is the duty of coal chute men to prevent waste and unnecessary breaking of the coal and to keep all coal picked up around their stations.

"It is the duty of roundhouse men to pay particular attention to work reported on engines that cause fuel losses.

"Every other employee who has an opportunity to save fuel must do his part by taking advantage of such opportunity and thus do his share to reduce the amount of fuel necessary for railroad use.

"To All.—A saving of five per cent of the total coal used by railroads would release about 7,000,000 tons a year for other purposes."

CAR SHORTAGE AND COAL SHORTAGE

By Arthur Hale

Vice-President, Consolidation Coal Company

The subject of car shortage is ordinarily of little moment to the fuel department of a railroad, and especially of a railroad which has mines on its line; but it seems to me that the effects of the present long continued car shortage are such that it is now or should be of interest to all of you.

Ordinarily the fuel department is not interested in car shortage, because it does not know what car shortage is; that is, the railway's fuel coal has the first call on coal cars, and as long as there are any coal cars at all on a railroad they go into its fuel mines. This is as it should be, as a railroad cannot operate at all unless it has its coal, and therefore there should be a preference to cars for fuel coal. That preference is not as great as it used to be. Under various rulings of the Interstate Commerce Commission the pref-

erence for cars of fuel coal has been lessened. In the old days the fuel cars were not counted at all in the distribution; now they are counted under certain circumstances, but the rules are usually so framed that a preference is given in car distribution to fuel coal, and this preference is such that railways usually obtain their coal for somewhat less than other consumers who are not in position to give the coal operator any preference in car supply. I know that this statement will not be universally accepted, but if you will take the quality of coal into consideration and also the prices for a considerable period of years, I am quite confident it will be found that the railways that are able to give this advantage in car distribution have paid less than other consumers for similar quality of coal.

Under ordinary circumstances, then, the car supply question was of no great interest to the fuel department. It was able to assure a regular car supply to its contractors; it was able to secure reasonable prices and it was very little affected during periods of car shortage. Today the situation is changed and, although the fuel department can still offer a full car supply, it is unable to secure its old prices. There are doubtless a number of causes for this, but I believe the chief cause is the long continued car shortage which has so affected production and the labor situation that the scarcity of coal is reflected back into the prices of fuel coal as well as commercial coal.

This change in the situation is shown clearly by the action of the Special Committee on National Defense of the American Railway Association, which has recently called on all the railroads to give a first preference in car distribution and movement to coal. This is a revolutionary proposition. Normally everything else is preferred to coal, both in distribution of cars and in movement of cars.

Doubtless with the preference which is to be given to coal in distribution and movement, the operators of coal mines can rely on a better force this summer, and we hope that with a regular car supply we can build up our forces again and supply the coal which the country needs.

It would seem then that this general car shortage, existing as it has for so many months, has resulted in a real shortage of coal, and that this has naturally resulted in increased prices of coal which have influenced even railroad fuel. It is therefore of interest to the fuel department that the general supply of coal be increased, and that can only be done by a more liberal supply of cars; that more liberal supply of cars should come from the measures taken by the Special Committee on National Defense, but the relief is coming very slowly and, in order to hasten that relief, the efforts of every railroad man are needed, including the fuel department. I feel sure that no one will be behind in the fuel departments of the railroads in working with the rest to secure for the coal operators as well as for the railroads an adequate car supply.

THEORY, PRACTICE AND RESULTS OF FUEL ECONOMY

By W. P. Hawkins,

Fuel Agent, Missouri Pacific.

One of the largest single items of waste of fuel can occur at terminals by allowing engines to remain under fire longer than necessary, first, by too long a delay between the time they are detached from their train after arrival and the time the fires are knocked, and, second, by firing them up earlier than necessary before departure.

Any and all delays encountered in housing engines after arrival, in addition to wasting coal, reduce the time that should be used for washing out boilers and making necessary repairs, and in many instances the direct cause of engine failures can be traced to the fact that the engine, while at the terminal possibly seven or eight hours, was actually in the roundhouse but three hours. The work that must necessarily be neglected on engines by not housing them promptly, and the hours of service of the locomotives which are lost to the transportation department from such delays, should make the amount of coal lost a secondary consideration.

Despatchers or yardmasters, whose duty it is to order engines, should be in a position to furnish the roundhouse foreman correct figures as to the time the engines are needed, and allow sufficient time to fire them up so that they can be taken out of the roundhouse in ample time to make any necessary preparation for their departure on the time of the call. This time might vary from two to three hours, according to the facilities for handling engines and the distance and convenience of the tracks between the roundhouse and the train yard.

Firing up engines in anticipation of call is a very bad practice for many reasons, and should be permitted only in exceptional cases, where it is considered expedient to protect against delays to traffic on main line divisions. In such cases it should not be necessary to hold more than one engine under fire for protection, and this should be the engine which is due to leave the terminal first.

Where an engine is allowed to stand a long time under fire the front end netting may become stopped up and the fire becomes dirty, which often results in the engine not steaming well on the road. Records show that many engine failures are charged to engines being allowed to leave the terminal with the fire in bad condition, with resultant loss of coal during the trip; and where it is a practice to fire up engines in advance of call, additional labor is necessary to watch the engines in order to keep the fires alive and to take care of the water in the boilers.

We know of one large terminal where such delays occurred frequently, and where the average time engines were held under steam unnecessarily was very high. The matter was handled directly with the division superintendent and roundhouse foreman, who claimed that no engine was fired up unnecessarily, and did not give much hope that any improvement could be made. The matter was not allowed to drop, however, but was checked closely for several days by a man who was familiar with all of the customs and practices in connection with the handling of engines at terminals, with the result that at the expiration of two weeks this same roundhouse foreman made a report voluntarily that he was making a saving of approximately twenty tons of coal per day by carrying out the suggestions of the fuel department.

Suppose that on any large railroad there are 20,000 engines handled at the various terminals during one month, and that each engine is held under steam an average of six hours. If it were possible to reduce this time by closer supervision to four hours per engine, there would result a monthly saving of 1,500 tons of coal, these figures being based on an average hourly consumption of 75 lb. per engine, which is considered low.

Another large waste occurs if proper attention is not given to firing up engines. If 75 shovels of coal are sufficient to raise 100 lb. of steam in order to handle the engine out of the roundhouse, 100 or more shovels should not be used. The probability is that the additional number of scoops of coal used may only result in the engine popping off several times before it is attached to the train, causing both waste and annoyance.

Every engine should have as large a nozzle as it is possible to use, and enable the engine to make steam freely. If engine is failing for steam the nozzle should not be reduced until full investigation has been made, in order to determine whether or not the engine has any other defects which might in any way contribute to the failure. A record should be kept showing the size of the nozzle in every engine, and every change made in the nozzle or front end should be reported for record. It is necessary that all joints

around the front end be kept absolutely air tight, and that the area of opening in the front end netting be as large as possible. The air opening in ash pan should not be less than 14 per cent of the grate area and 100 per cent of the tube area. Insufficient air opening will likely make it necessary to operate the engine with a reduced nozzle opening. A reduction of from one-eighth to one-quarter inch in the size of the nozzle might easily cause a waste of from 2,000 to 4,000 lb. of coal per trip over the average division.

Leaky steam pipes or nozzle-stand joints will cause a waste of 2,000 to 4,000 lb. of coal per trip. In many instances locomotives are allowed to run until they make several failures before steam pipes are tested, and frequently are continued in service after they are found leaking by some make-shift arrangement such as bridging the nozzle or putting cement around the joints, which, at the best, is only a temporary arrangement. If this results in keeping down complaints from the engine crew there is likely to be no more attention paid to the engine until it fails again, and in the meantime it is consuming coal almost beyond the capacity of the tender. Steam pipes should be tested every time an engine is held in for repairs as long as two days or more.

Valves or cylinder packing blowing might easily cause a waste of one or two tons of coal over a 125-mile division. In addition to the waste of fuel, an engine cannot perform its service satisfactorily or haul its full tonnage rating with defects of this nature. It is considered good practice to examine cylinder packing every 30 days, as experience has demonstrated that it is not always possible for an engineer to detect a blow in the cylinders of a large engine. We know of instances which have occurred recently where this defect was not discovered until after the engines were reported failing for steam and not handling their trains successfully. After making the usual changes in the front end, and testing steam pipes without any improvement being made, the cylinder packing was examined as a last resort, and was found worn out and broken. The saving of coal and increased efficiency to be procured by examining the cylinder packing at regular intervals will, no doubt, more than offset many times the expense of examination.

Valves out of square, making it necessary for an engineer to work the engine in a longer cut-off in order to get over the road, is another serious defect which causes an excessive amount of fuel to be consumed. Tests have shown that it is possible for an engine to consume as much as 25 per cent in excess of the required amount of coal on account of the valves being out of square.

Defective, broken or burnt grates will cause a loss of from 100 to 200 lb. of coal every time an engine is fired up in the roundhouse with mine-run coal, and will cause a continual waste on the road. They also allow holes to get in the fire, probably resulting in steam failure before the completion of the trip.

Leaky safety valves do not always seem to be given proper consideration. Where safety valves which are set to pop off at 200 lb. commence to blow at from 150 to 180 lb., there is a constant drain on the boiler, and the loss of fuel from this cause is very great.

Superheater units in all superheated locomotives should be tested regularly at intervals of not more than 60 days, and where the joints are found leaking repairs should be made with the least possibly delay. We have record of cases where engines lost 60 tons of coal in one month, compared with engines of the same class hauling the same tonnage over the same division, due to superheater unit joints leaking, and yet the engines performed their service apparently satisfactorily to both the transportation and mechanical officers of the division.

All tubes should be kept thoroughly clean. Investigations have shown many times, where engines are reported failing for steam, that the failure was entirely due to a large number of tubes being stopped up. We know instances where the tubes were reported to be bored out by engineers and from all indications, looking into the firebox from the engine deck, the work was apparently properly done. A closer investigation, however, developed that the ends of the tubes were cleaned out for a distance of only 10 in. or 12 in. The improper boring of tubes occurs so frequently in many roundhouses that the importance of close supervision of this work should not be overlooked.

Experience has proved that a locomotive with a tender holding from 14 to 16 tons of coal can easily lose from 500 to 1,000 lb. along the right-of-way for the first 25 or 30 miles out of the terminal, where it is a practice to overload the tenders before leaving. Large openings in the deck and around the grate shaker rigging, or over the draw-bar pin, left uncovered, will cause waste of 100 lb. or more of coal each trip over the road, and where some protection is not provided for preventing coal from falling out of the gangway on both sides another large loss will occur daily.

Fuel supervisors or road foremen of engines can easily keep a check on all defects and on their frequent trips over the road they should never lose sight of the importance of instructing engineers and firemen in the best and most economical methods of handling the engines in their charge. They should follow up the work they report and see that it is done in a reasonable length of time, and if not, take whatever steps may be necessary to assist in having it done.

Where monthly meetings are held by the division officials, the fuel supervisor or road foreman of engines of the division should attend these meetings and discuss thoroughly all matters relative to fuel economy. At such meetings much good might be accomplished by bringing up such matters as poor meeting points, long delays on sidings, and all matters which tend to the prompter movement of trains. It is considered to be a conservative estimate that any large modern locomotive will use anywhere from 500 to 1,000 lb. of coal every hour it is held on a side track.

The constant efforts of division officers should be directed toward keeping the average gross tons per train mile hauled as near to the maximum as possible. If the average gross tons per train mile are allowed to decrease, there will be an increase in the number of pounds of coal consumed per hundred gross ton miles. It has been proved that where a certain class of engine will use nine tons of coal over a 118-mile division with a train of 1,700 tons, the same engine will burn only 15 tons over the same division with a train of 3,400 tons, giving an increase of 100 per cent in tonnage hauled, with an increase of but 66 per cent in the amount of coal consumed.

As all the defects enumerated are ordinary running repairs that should be kept up daily, and can easily be completed at a cost of from $5 to $30, engines should not be permitted to remain in service with such defects until they have lost $75 or more in the additional amount of coal consumed before repairs are made.

There should be some practical method in force for checking coal consumed by each locomotive daily. Such a record should be kept either in the office of the superintendent or master mechanic. This record should be consulted frequently during the month by the master mechanic and fuel supervisor, and where an engine is showing an increased consumption in pounds of coal per hundred gross ton miles, immediate action should be taken to improve on its performance. The accounting feature should receive serious consideration, in order that the amount of coal shown delivered to locomotives on performance sheets may agree approximately with the auditor's figures at the end of each month. A good method is to have each coaling station adjust the difference each day on fuel charges to locomotives, or, in other words, each coal chute should balance every day.

It is obvious that the fuel agent, or whoever is in charge

of fuel economy, must have the co-operation of the mechanical and operating officers. Where results and practices indicate that such assistance is not forthcoming, he must be in position to point out the shortcomings of the parties at fault, regardless of the position they may hold on the division, and take whatever steps may be necessary to bring about the improvement and results that are desired.

Discussion

The saving which can be made in the fuel used at terminals is very large. Delays on the road also add a considerable amount to the railroad fuel bill. The possibility of saving by better despatching should be brought to the attention of the officers in the transportation department. Coal should be carefully inspected at the mines and chutes must be arranged so that no fuel is lost when loading tenders. The steam pipes should be tested periodically, but the advisability of doing this work whenever the engine was held for two days or more was questioned.

KINDLING FIRES IN LOCOMOTIVES

By H. B. Brown,
General Fuel Inspector, Illinois Central.

In order that a comprehensive idea might be obtained as to the cost of kindling fires in locomotives, a circular letter was sent to the railroads, asking for information regarding the kind of fuel used in kinding fires at terminals, the grate area of the locomotives, the pounds of coal used, the water temperature, the labor cost and total cost. From the replies to this circular, the data shown in the table was compiled. The locomotives were separated into three different classes, one having a large, another a medium and the third a small grate area. In compiling the total cost, 63,000 locomotives were considered as being used on 250,000 miles of line, 10 per cent being deducted for the number in shops. The total number of locomotives was divided into the three classes by assuming that 20 per cent of the total have a large grate area, that 50 per cent have a medium grate area and that 30 per cent have a small grate area.

It was found that kindling with dry shavings was the cheapest method and the costs of all the other methods were compared with this method. In the dry shaving method, a one-inch layer of dry shavings was placed on the grate first, then four or five inches of coal and another inch layer of dry shavings. An opening was left in the middle for the full length of the firebox for the admission of air to aid the combustion and to eliminate smoke. The second method of firing shown in the table was similar to the first with the exception that oil soaked shavings were used instead of the dry shavings. The third method refers to a fuel bed made up of a 5-in. layer of scrap wood taken from the car shops, laid directly on top of the grate with a 5-in. layer of coal, an opening being left in the middle of the firebox for the full length for the admission of air. The fourth method relates to the use of a 5-in. layer of cord wood and a 5-in. layer of coal, similar to the third method. The fifth method relates to a 5-in. layer of coal with oil spread on top, an opening being left for the full length of the firebox in the middle of the fuel bed. In kindling fires in locomotives burning fuel oil, the method followed was to use a piece of oil-soaked waste placed on top of the arch. The last method shown in the table relates to the use of live coal for the kindling of the fire.

It was found that a large amount of coal will be saved by placing a layer of shavings on the grate first, as it naturally prevents the coal from falling through the grate bars, becoming ignited in the ash pan and causing its deterioration. The reports show that as high as 80 lb. of coal was lost in this way and where the shavings were placed on top of the grate first, this amount was reduced to six pounds.

Comparative Cost of Firing Up Engines at Terminals.

Material Used for Firing.	Size of Grate Area.	Daily Cost.	Cost for Firing 50 Per Cent Each Class Engine Once a Day.	Yearly Savings for Firing Once a Day with Shavings.
Dry Shavings	Large	$1.14	$2,326,968.00	.....
	Medium	.95	4,847,850.00	.....
	Small	.68	2,082,024.00	.....
Oil Soaked Shavings	Large	2.04	4,164,048.00	$1,837,080.00
	Medium	1.41	7,195,230.00	2,347,380.00
	Small	1.08	3,306,744.00	1,224,720.00
				$5,409,180.00
Scraps, Car Shops	Large	$1.93	$3,939,516.00	$1,612,548.00
	Medium	2.08	10,614,240.00	5,766,390.00
	Small	1.40	4,286,520.00	2,204,496.00
				$9,583,434.00
Cord Wood	Large	$2.87	$5,858,244.00	$3,531,276.00
	Medium	1.19	6,072,570.00	1,224,720.00
	Small	.70	4,286,520.00	2,204,396.00
				$6,960,492.00
Oil Sprayed on Coal	Large	$1.62	$3,306,734.00	$398,034.00
	Medium	1.20	6,123,600.00	1,275,750.00
	Small	.82	2,510,676.00	428,652.00
				$2,102,436.00
Fuel Oil	Large	$2.35	$4,796,820.00	$2,469,852.00
	Medium	1.49	7,603,470.00	2,755,620.00
	Small	1.09	3,338,162.00	1,256,138.00
				$6,481,610.00
Live Coals	Large	$2.45	$5,000,940.00	$2,673,972.00
	Medium	1.40	7,141,680.00	2,293,830.00
	Small	1.10	3,367,980.00	1,285,956.00
				$6,253,758.00

Discussion

The cost of kindling fires is not generally realized and the work is seldom done in a systematic manner, due to the employment of cheap labor. Shop scrap and old ties can sometimes be used and are economical and satisfactory. The supply of shavings is often insufficient to meet the requirements. Air jets introduced into the firebox to eliminate smoke have given good results. Natural gas has been used for kindling fires with good satisfaction.

REPORT ON MOUNT UNION COLLISION

The Interstate Commerce Commission has issued a report, dated April 6, giving the facts of its investigation of the rear collision of a freight with a passenger train at Mount Union, Pa., on the Pennsylvania Railroad February 27, last, in which 20 persons were killed; and the conclusions of H. W. Belnap, chief of the division of safety, concerning the causes of the collision.

The principal features of this collision were reported in the *Railway Age Gazette* of March 9, page 404. The present report accepts the evidence that the distant signal which should have stopped the freight train showed green (caution) and that Engineman Cook did not read it correctly. It is stated that this engineman had slept only four hours 40 minutes, when he was at home just preceding this trip. He went on duty February 25 at 7 p.m.; arrived at Altoona the next morning at 9:50; went to bed at 12:20 p.m.; was called for the next run at 5 p.m., to go out at 6:30 p.m.; and this was the trip on which the collision occurred, at midnight.

The government investigators made careful examinations of the brakes of the passenger train, and especially of the mail car, the brakes of which stuck and caused the delay which occasioned the collision; and the automatic signal apparatus was examined with equal care. No faults were found in either case.

Flagman Jacobs, of the passenger train, "failed entirely to perform his duty as a flagman" and must bear his full share of responsibility. The flagging rule of the Pennsylvania Railroad is the brief form which was in the standard code of the American Railway Association at the time the Pennsylvania rule was adopted; the form which leaves to the judgment of the flagman the distance that he should go back and also the question whether or not he should go back at all. "It is believed that the rule should be amplified by

special instructions suited to the various conditions of operation of individual roads." Where automatic signals are used "it is beyond question that far more protection is afforded by the signals than by the flagman and that flagmen form the habit of relying upon the automatic signals, this practice being silently acquiesced in by the officers." "This," says the report, "is a dangerous practice and cannot be justified on any road which relies upon the practice of flagging for protection of its trains."

The night signal colors, white for clear and green for caution, "do not conform to the best practice"; but the railroad company has already authorized the adoption of green for clear and yellow for caution, the scheme to be changed as soon as material for the new colors can be got.

The sleeping car that was crushed was built in 1910. At the ends of the car, on each side of the end door, there was one 4-in. I-beam weighing 8½ lb. a foot and three 4-in. panels weighing 6¼ lb. a foot. The strength of this end framing, to resist shock and collision, resided chiefly in the shearing strength of the angle iron connections. These vertical members were stripped from their connections with the floor. The report calls attention to the specifications under which railway mail cars are built; these stipulate that the ends of cars shall be proportioned to resist horizontal forces applied at a point 18 in. above the floor line. The features of adequate strength in end construction and collapsibility of vestibules as the means of lessening the dangers of collisions demand, says the report, serious consideration.

The report accepts the signal system of the road as representing the highest development of automatic signaling practice. No expense has been spared and a highly competent and well-organized signal department maintains the apparatus, surrounding it with all safeguards. "The train service personnel represents the best that can be found upon American railroads. The men are products of a long-established, well-organized and carefully conducted system of training and discipline; they are subjected to periodic examinations, both mental and physical; they are required to meet efficiency tests at irregular and unexpected times; and are kept under observation to an extent which makes it almost unthinkable that incompetent or habitually neglectful persons can long remain in the service." But, notwithstanding this excellent personnel and high-grade signal system, the Commission has been called upon to investigate four serious rear collisions on this road where these modern signals are used during the past four years; and in each case the engineman at fault was a man of long experience and good record.

"In numerous reports attention has been called to the danger of permitting fast trains to proceed at undiminished speed when signals are obscured by fog. Theoretically this is safe, as the signals indicate the condition of the track ahead with as great certainty in foggy weather as in clear; but experience has amply demonstrated that as a practical matter it is not safe. The chance of misreading a signal from a rapidly moving train is immeasurably greater when fog is so dense that the signal can be observed but a short distance than when the atmosphere is clear enough to permit observation of signals at normal range of vision. In clear weather a signal can be seen far enough away to permit it to become fixed upon the vision with certainty; by the time the locomotive reaches the signal location the indication of the signal has been in the eye of the engineman long enough to insure accuracy of observation. But in foggy weather the signal flashes upon the vision of the engineman but for an instant and then disappears. * * *

"Had there been an automatic train stop installed braking distance in the rear of signal bridge 1904, neither the speed of the train nor the misreading of the signal at bridge 1912 would have prevented the train from being brought to a stop in time to prevent this collision.

"There are a number of automatic stop devices now available for use which are capable of development to meet railway operating conditions in a practicable manner. This work of development must be done by the railroads themselves. The work which the Government is doing in examining and testing automatic train-control devices can go no further than to indicate whether or not the devices tested are correctly designed and capable of being developed so as to perform their intended functions in a proper manner. It is obviously a duty which the railroads owe to the traveling public to develop and use these devices to the end that these distressing accidents, due to human error, may be eliminated from railway travel."

QUARTERLY ACCIDENT BULLETIN NO. 61

The Interstate Commerce Commission has issued Accident Bulletin No. 61, containing the record of railway accidents in the United States during July, August and September, 1916. The number of persons killed in train accidents was 122 and of injured 1919. The total number of casualties of all classes reported was 2,932 killed and 54,003 injured. The casualties are summarized in Table No. 1 as follows:

TABLE NO. 1—CASUALTIES TO PERSONS

Class	Passengers and persons carried under contract		Employees (including Employees not on duty)		Other persons (trespassers and non-trespassers)		Total persons	
	Killed	Inj'd	Killed	Inj'd	Killed	Inj'd	Killed	Inj'd
Train accidents								
Collisions	1	492	45	471	1	10	47	973
Derailments	4	357	48	326	14	80	66	763
Miscl., incl. boiler expl.	..	20	9	160	.....	3	9	183
Total	5	869	102	957	15	93	122	1,919
Train-service accidents	61	1,322	533	11,902	2,065	2,975	2,659	16,199
Total	66	2,191	635	12,859	2,080	3,068	2,781	18,118
Non-train accidents	..	.....	121	35,338	30	547	151	35,885
Grand total	66	2,191	756	48,197	2,110	3,615	2,932	54,003

Table No. 1a, following, presents comparisons with the quarterly bulletin next preceding and with the bulletin covering the corresponding quarter of the previous year.*

No.		Bulletin No. 61	Bulletin No. 60	Bulletin No. 57
1	Passengers killed in train accidents	5	23	22
2	Passengers killed, all causes	66	57	62
3	Employees on duty killed in train accidents	101	42	78
4	Employees on duty killed in coupling	34	29	30
5	Employees on duty killed, total	559	420	438
6	Total passengers and employees (items 2 and 5 above)	625	477	500
7	Other persons killed, all causes	2,156	1,692	1,936

The total number of collisions and derailments reported was 3,559 (1,497 collisions and 2,062 derailments), of which 123 collisions and 157 derailments affected passenger trains. The damage to cars, engines and roadway was $2,913,600. This money loss compares with $2,260,600 for the same quarter in 1915, $2,342,511 in 1914 and $3,239,159 in 1913.

The usual tables are given, classifying certain kinds of accidents in detail. Eighteen train accidents occurring during this quarter were investigated by the inspectors of the commission and the reports of these investigations fill 36 pages of the bulletin.

Electric railways reporting to the commission (not included in the foregoing statistics) had 180 persons killed during the quarter and 1,326 injured; and there were 47 collisions and 12 derailments. Train accidents are charged with 4 fatalities. The total number of passengers killed from all causes was 11 and of employees 12. The number of trespassers struck or run over by cars was 61; 43 killed and 18 injured.

* Bulletin No. 60, for the fiscal year ending June 30, 1916, was reported in the *Railway Age Gazette*, February 16, last, page 272.

THE LIBERTY LOAN

Secretary of the Treasury McAdoo made public early in the week the official prospectus and subscription blank for the first $2,000,000,000 bond issue of the $5,000,000,000 Liberty Loan.

"With the announcement of the details of the Liberty Loan," he said, "the preliminary campaign is ended and the actual campaign has begun. There are thirty days within which the people of the United States must make good the action of Congress in pledging all the resources of the country for the conduct of a righteous war—a war for universal liberty.

"Failure to subscribe the $2,000,000,000 required would be a confession of national impotence. I do not for a moment doubt the overwhelming success of the Liberty Loan if the people are made to realize that no great work of this kind can be accomplished unless every one throws himself into the task with the energy and fire of determined patriotism.

"Wars cannot be conducted without money. It is the first thing to be provided. In this war it is the most immediate help, the most effective help, that we can give. We must not be content with a subscription of $2,000,000,000. We must oversubscribe this loan as an indication that America is stirred to the depths and aroused to the summit of her greatness in the cause of freedom.

"Let us not endanger success by complacent optimism. Let us not satisfy ourselves with the reflection that some one else will subscribe the required amount. Let every man and woman in the land make it his or her business to subscribe to the Liberty Loan immediately, and if they cannot subscribe themselves, let them induce somebody else to subscribe. Provide the government with the funds indispensably needed for the conduct of the war, and give notice to the enemies of the United States that we have billions to sacrifice in the cause of liberty.

"Buy a Liberty bond today. Do not put it off till tomorrow. Every dollar provided quickly and expended wisely will shorten the war and save human life."

The Treasury Department is planning a vigorous publicity campaign on behalf of the bond issue. Secretary McAdoo, himself, will make a tour of the Middle West, beginning in Chicago May 17.

The Treasury Department's circular issued Monday is herewith given in part:

The Secretary of the Treasury invites subscriptions at par and accrued interest from the people of the United States of America for $2,000,000,000 of the fifteen-thirty-year 3½ per cent gold bonds of an issue authorized by act of Congress approved April 24, 1917.

Bearer bonds, with interest coupons attached, will be issued in denominations of $50, $100, $500 and $1,000. Bonds registered as to principal and interest will be issued in denominations of $100, $500, $1,000, $5,000, $10,000, $50,000, and $100,000. Provision will be made for the interchange of bonds of different denominations and of coupon and registered bonds. . . .

The bonds will be dated June 15, 1917, and will bear interest at the rate of 3½ per centum per annum from that date, payable semi-annually on December 15 and June 15. The bonds will mature June 15, 1947, but the issue may be redeemed on or after June 15, 1932, in whole or in part, at par and accrued interest, on three months' published notice, on any interest day; in case of partial redemption, the bonds to be redeemed to be determined by lot by such method as may be prescribed by the Secretary of the Treasury. The principal and interest of the bonds will be payable in United States gold coin of the present standard of value, and the bonds will be exempt, both as to principal and interest, from all taxation, except estate or inheritance taxes, imposed by authority of the United States or its possessions, or by any State or local taxing authorities. The bonds will not bear the circulation privilege, but will be receivable as security for deposits of public money.

If any subsequent series of bonds (not including Treasury certificates of indebtedness and other short-term obligations) shall be issued by the United States at a higher rate of interest than 3½ per centum per annum before the termination of the war between the United States of America and the Imperial German Government, the date of such termination to be fixed by a proclamation of the President of the United States), the holders of any of the bonds of the present issue shall have the privilege of converting the same, within such period and upon such further terms and conditions covering matters of detail as the Secretary of the Treasury may prescribe, into an equal par amount of bonds bearing such higher rate of interest and substantially identical with the bonds of such new series, except that the bonds issued upon such conversion are to be identical with the bonds of the present series as to maturity of principal and interest and terms of redemption.

The agencies designated by the Secretary of the Treasury to receive applications for the bonds now offered are the Treasury Department, in Washington, D. C., and the Federal Reserve banks in Boston, New York, Philadelphia, Cleveland, Richmond, Atlanta (with branch at New Orleans), Chicago, St. Louis, Minneapolis, Kansas City, Dallas, and San Francisco. Said banks have been designated also, as fiscal agents of the United States, to collate applications and to give notices of the allotments which the Secretary of the Treasury will eventually make to subscribers and to issue interim certificates for payments made on allotted subscriptions.

Large numbers of national banks, State banks and trust companies, private bankers, express companies, newspapers, department stores, and other private corporations, firms and organizations, have patriotically offered to receive and transmit applications for the Liberty Loan without expense to the United States or to the applicants. The Secretary of the Treasury, appreciating the value of these offers, will have application blanks widely distributed throughout the country to these private institutions and also to the post offices and sub-treasuries. Individual subscribers may use these conveniences or may send their applications directly to the Treasury Department at Washington and to the Federal Reserve banks. As the law prohibits the allowance or payment of commissions on subscriptions, all those through whom applications are made render service as a patriotic duty without compensation.

All applications must be in the form prescribed by the Secretary of the Treasury and be accompanied by a payment of 2 per centum of the amount of the bonds applied for. Applications must be for $50, or any multiple thereof, but any application for one $50 or $100 bond until further notice may be allotted at once and payment in full accepted against delivery of an interim certificate. Applications must reach the Treasury Department or a Federal Reserve bank not later than noon, June 15, 1917, the right being reserved by the Secretary of the Treasury to close the subscription on any earlier date.

Allotments will be made as soon after June 15 as possible. . . .

The dates for payment in installments are as follows:

Two per cent on application;
Eighteen per cent on June 28, 1917;
Twenty per cent on July 30, 1917;
Thirty per cent on August 15, 1917;
Thirty per cent on August 30, 1917.

It is strongly recommended that subscribers avail themselves of the assistance of their own banks and trust companies.

LIBERTY LOAN

APPLICATION FOR BONDS

This application should be transmitted through the subscriber's bank, trust company, or other agency acting on his behalf, or it may be filed direct with the Federal Reserve Bank of his district, or the Treasury Department at Washington.

Dated.....

To the Secretary of the Treasury:

According to the terms of Treasury Department Circular No. 78, dated May 14, 1917, the undersigned hereby apply for $..... par value of the 15-30-year 3½ Per Cent Gold Bonds of the United States, and agree to pay par and accrued interest for any bonds allotted on this application. The sum of $..... is inclosed, being 2 per cent on the amount of bonds applied for (or payment in full for the one $50 or the one $100 bond applied for).

Signature of subscriber, in full.....
Address, number and street.....
City or town.....
County..... State.....

NOTE—It is desirable that the following information be furnished by the applicant:

1. If full payment is to be made before final installment date indicated in the circular, what will be the date of such full payment? .....

2. If it is expected that future payments will be made by check, upon what bank or trust company will such checks probably be drawn?

Name of bank or trust company.....
Address .....

3. What, if any, particular denominations of interim certificates are desired? .....

4. Through what, if any, bank or other agency is this application transmitted? .....

Treasury Department's Application for Liberty Loan Bonds.

SWISS-ADRIA RAILWAY PROJECT.—Extracts from a report on the projected Swiss Adria Railway have been forwarded by the British vice-consul at Bâle, which indicate that the railway is to traverse Switzerland from Bâle or Delle to Mals, in Vintsghau—285 km. (177 miles) in all. The actual new line will be built between Melenfeld and Mals, a distance of about 98 km. (61 miles), and at its highest point at Lavin will be 1,410 km. (4,626 ft.) above sea-level. The total cost of the new line is placed at 143,800,000 fr. (roughly, £5,752,000 or $27,954,720). It is claimed that not only would the route to the East be considerably shortened by the projected railway, but that its opening would revive the importance of the port of Venice.

Convention of Railway Development Association

Discussion of Ways of Increasing Agricultural Productivity, Value of Industrial Surveys and Other Subjects

THE Railway Development Association held its annual convention at the Tyler Hotel, Louisville, Ky., on May 9, 10 and 11. The responsibility resting on the members of the association in the present crisis was pointed out by a telegram received during the first day's session from Howard Elliott, member of the executive committee of the Special Committee on National Defense of the American Railway Association, reading in part as follows: "Our committee had a private interview with Marshal Joffre in which he pointed out the great importance of railways in modern warfare. * * * Upon the United States' railways and their employees depends very largely the question of winning this war in the shortest time. * * * You are interested in the development of American railways and I ask you to help develop the greatest spirit of patriotism among railway officers and employees, urging upon them to contribute their maximum efforts to produce the largest quantity and highest quality of transportation for use of the country at this time."

In reply to Mr. Elliott's appeal the association sent a telegram, reading in part as follows: "We are fully alive to the serious situation which confronts our nation and we should not have taken time for meeting during these busy days were it not for the belief that by meeting and conference, we could co-ordinate our efforts by merging our individual development and service activities to render maximum and most efficient service."

Increasing Agricultural Productivity

Owing to the heavy demands upon the members of the association during the present emergency only 60 out of a total membership of 172 were able to attend the convention. Nevertheless, the sessions brought out earnest and fruitful discussion on questions which at the present time are of much moment. A considerable part of the first day was devoted to consideration of ways and means of increasing the agricultural productivity of the country. Attention was called to the letters and posters prepared by the railroads with the idea of impressing upon the farmers the pressing necessity of big crops this year. It was brought out that most roads had offered their rights-of-way to their employees and to the public for purposes of cultivation. In order to encourage as far as possible the utilization of vacant railroad property for food production, many roads have greatly simplified the phraseology of their leases, sacrificing the legal protection of carefully worded contracts to make the offer of land as inviting as possible to farmers and prospective gardeners.

E. A. Niel, of the Buffalo, Rochester & Pittsburgh, told of some of the unusual efforts made by his road to increase agricultural productivity. The B. R. & P. not only gave its right-of-way for garden purposes, but purchased 1800 bu. of seed potatoes for distribution among 700 employees. It has also purchased three farm tractors for the use of employees and farmers at the nominal cost of operation. Each tractor will draw a gang of three plows and will do as much work in a day as three teams. George S. Bruce, immigration and industrial agent of the International & Great Northern, described the unusual efforts made by the railroads of Texas in co-operation with agricultural college experts, representatives of the state department of agriculture and others, to make for a maximum food production. These agencies have organized committees of prominent citizens, bankers and commercial organizations in each locality for the purpose of disseminating information conducive to agricultural productivity and of aiding the farmers in every possible manner. These committees are also making an inventory of the seed in each community so that a surplus in one place may be transferred to points where there is a deficiency.

The activities described by Mr. Bruce are typical of those carried on by railroads generally throughout the country. A. D. Knox, assistant agricultural agent of the Nashville, Chattanooga & St. Louis, told of a food preparedness special train which his road had placed at the disposal of state agricultural experts to enable them to give assistance and instruction to farmers throughout the state of Tennessee.

The great waste in beef occasioned by the slaughter of calves evoked considerable discussion. The important part which can be played by the railroads in effecting a transfer of calves from farmers who have a surplus to those who will raise them to maturity was emphasized. Typical of the co-operation by the railroads with other agencies to achieve this end is the work being done by the St. Louis Southwestern described by W. R. Beattie, agricultural commissioner. Bankers and business men in cities on his road have organized for the purpose of extending credit to boys' and girls' calf clubs wishing to purchase calves to raise. The railroad in conjunction with the organizations named obtain the calves from farmers who formerly have sold them for butchering.

Members of the association were urged to use their influence in creating a sentiment against the eating of veal to further the conservation of the future supply of beef.

D. C. Welty, commissioner of agriculture of the St. Louis, Iron Mountain & Southern, told of what had been done by his road in conjunction with the Missouri State Federation of Commercial Clubs, the Missouri Bankers' Association and the Governor's council for defense to make a survey of industrial labor available for agricultural work during the harvesting season. The labor needs of the farmers in the state have been thoroughly canvassed and recorded in card index form and a like record has been made of the employees of industries in the state which may be released for short periods for farm work.

The possibility of using school boys and girls for work in the fields was discussed and members of the association were urged to encourage the use of school children on the farms.

Mr. Welty explained how his road serves as a seed and livestock exchange for farmers. Whenever there is a demand for or an oversupply of seed or stock at any point, general agents of the road throughout the country are notified and asked to supply the need or to arrange for the disposal of the surplus.

The general consensus of opinion was that the function of the railroad representative was to aid all existing agencies for the development of agriculture rather than to work independently of other forces. As members of a business organization railroad men can win for agricultural school experts and county agricultural agents that confidence which conservative farmers hesitate to give to "theoretical professors." By pointing to the success of the agricultural experts on other parts of the line, the railroad representative can induce the farmer to heed their advice. The railway agricultural agent is also in a better position to induce bankers and business men to extend needed credit to farmers than the farmers themselves. The railroad can do much to

harmonize all interests working for agricultural improvement, thus insuring to the territory it serves the full fruits of concerted activity rather than the unsatisfactory results accruing from dissension, duplication and working at cross purposes.

Organized effort which has worked well in one community may be introduced to advantage by the railroads in other localities. As an example of a movement of merit which may be duplicated elsewhere, R. W. Cooke, industrial agent of the Pennsylvania Lines, told of the organization of business men in Wheeling, W. Va., for the purpose of aiding the farmers in the vicinity. In order to conserve the time of the farmer as much as possible, members of the association have agreed to deliver to him by automobile any article he may call for by telephone which is necessary to the continuation of his work at that particular time. This service will be given the farmers gratis to the end that a maximum of production of foodstuffs may be achieved.

Railroads and Marketing

W. H. Olin, supervisor of farm marketing of the St. Louis-San Francisco, discussed "Efficiency in Railroad Marketing Department Work." He said that the railroads could do much to impress upon the farmer the importance of properly picking, grading and packing his products. Heretofore the honesty of the commission men has not been so much at fault as the ignorance of the farmers. Because of the lack of standardization in packing, commission men have been forced to guess at the quality of what they purchase, with the result that the prices are based on the worst part of each product. Mr. Olin did not favor the direct-from-producer-to-consumer movement, but declared that the economical distribution of foodstuffs necessitated an intermediary. The consumer lacks storage space to take care of large shipments and the individual producer cannot ordinarily produce enough to ship in carloads. When foodstuffs are handled through commission merchants they are usually handled in carload units with the advantages of quicker transit, perfect refrigeration and stability of load.

Industrial Surveys

An address at the annual banquet by Tampton Aubuchon, general manager of the Louisville Industrial Foundation, which has been making an exhaustive industrial survey of the city of Louisville, was of much interest to the railway industrial agents present. Mr. Aubuchon explained the difficulty he had experienced in obtaining facts concerning Louisville industries, although his organization had the enthusiastic backing of all the business interests in the city. He said that a complete and useful study of a community cannot be done by outside experts, and he therefore doubted the value of intensive industrial surveys conducted by railroads. The greatest service a railway industrial department can perform, he said, is to arouse community enthusiasm, guide local interests in the proper channels and induce communities to develop themselves.

Mr. Aubuchon's address caused considerable discussion at the session of the convention following the banquet. Intensive industrial surveys by railroads were assailed on the grounds that useful investigation could be made only by local organizations thoroughly familiar with conditions and that such railway surveys tend to prejudice local commercial organizations in favor of roads making them. Where separate railway surveys are made, the recommendations of different roads may be at variance and based on superficial investigation with the result that the railroads generally lose the confidence of the cities affected. The best result for all concerned is to obtain the maximum possible development of the community. This can best be achieved, according to L. J. Bricker, general colonization agent of the Northern Pacific and president of the association, through the co-operation of all roads entering a town with the existing commercial clubs in making a survey. For railroads to have common interests for purposes of development is no more unusual than for commercial organizations of adjacent cities to join for common ends. The chambers of commerce of Louisville and the neighboring cities of New Albany and Jeffersonville co-operate on matters of common interest. They recently submitted a joint report to the government setting forth the advantages the Louisville industrial district had to offer as a location for the government armor plant.

The co-operation of competing railroads to develop the agricultural resources of a territory was said to be feasible and beneficial to all concerned where tried. The co-operation of railroads with agricultural colleges, federal and state agricultural experts and farmers' organizations is only successful, according to A. D. Knox, assistant agricultural agent of the Nashville, Chattanooga & St. Louis, when railroads get behind the work and not in front of it. The railroad representative can best serve his road by rousing interest in agricultural improvement along his line and permitting the federal, state and college agricultural experts to do the detailed work and to take the credit for whatever success may be attained.

The question of using films for the purpose of advertising the industrial possibilities of a road was discussed. The problem which seemed insoluble to all those present was what to do with the films after they were made—in other words, how to present them to industrial prospects.

There was considerable disagreement among members as to the value of press bureau bulletins to development agents. Many were of the opinion that the information gained through such bulletins was invariably out-of-date and therefore practically useless. Others said that considering the nominal cost of press bureau service, they believed it of some value; but many bulletins could be much improved.

Report of Agricultural Committee

The agricultural committee presented a report to the association which read in substance as follows: "The present war emergency calls for the maximum conservation and production of grain and livestock. The waste of grain for feeding stock, when forage could be used in large part instead, should be eliminated. In order to conserve the meat supply surplus calves should be transferred from those not desiring to raise them to those who will rear them. Efforts should be made to prevent the loss in foodstuffs due to the lack of standardization. There is a great loss in perishables because bad products are packed with good. In the case of non-perishables much is lost which could be used for human consumption because better grades are mixed with poorer grades. Railroad men should use every influence to induce bankers to extend a maximum amount of credit to farmers, as credit means labor-saving machinery and hence greater productivity."

Following the adoption of the report of the agricultural committee a number of resolutions were passed, including the following:

"Whereas the nation is passing through one of the greatest crises in its history, in which the transportation lines can play no small part in meeting the exigencies of the occasion,

"Resolved, That we pledge our support to the President of the United States and to the state and national councils of defense in carrying out the recommendations of the President in his address to the people of the United States, and all activities of the defense council, for a successful prosecution of the war.

"Resolved further, That the development departments of all the railroads co-ordinate their activities in this direction by merging their individual efforts into the national service, and to that end each officer in charge of development work will mail to each member of this association copies of all circulars, development literature or industrial pamphlets which may be issued for distribution to the public.

"Whereas in the present emergency the conservation of food products and the increased production of same is of absolute necessity, and

"Whereas we deplore the practice of killing young calves which is resulting in a shortage of our meat supplies and which will become more acute in the future,

"Resolved, That we earnestly advocate a discontinuance of this practice and recommend to the various organizations, both state and national, that they give serious consideration to methods of bringing about an immediate

discontinuance of this practice with a view of preventing the slaughter of young calves, either male or female, under nine months old.

"Whereas there is a recognized shortage of food products in this country, which is likely to be increased in the near future, which shortage is caused by the unprecedented lack of farm labor required for the production of food products:

"Therefore be it resolved: That the railways, through their proper representatives, pledge themselves to heartily co-operate with all national and state labor departments, agricultural organizations, individual farmers, manufacturers, as well as commercial bodies and other agencies, in every practicable way, to remedy the serious condition confronting the farmer to the end that increased food supplies may be produced,"

President L. J. Bricker conducted all sessions of the convention. Officers for the coming year were elected as follows: President, R. W. Cooke, industrial agent, Pennsylvania Lines West, Pittsburgh, Pa.; first vice-president, H. O. Hartzell, chief of industrial bureau, Baltimore & Ohio, Baltimore, Md.; second vice-president, A. D. Knox, assistant agricultural agent, Nashville, Chattanooga & St. Louis, Nashville, Tenn.; secretary-treasurer, D. C. Welty, commissioner of agriculture, St. Louis, Iron Mountain & Southern, St. Louis, Mo.

In addition to Mr. Aubuchon, R. L. McKellar, foreign freight traffic manager of the Southern, Louisville, Ky., addressed the association at the banquet. He outlined in considerable detail the organization and work of the development department of the Southern, which is said to be the oldest organization of its kind in existence.

Houston, Tex., was decided upon as the place of meeting for the next annual convention. The association now has a membership of 172 or a net gain of 19 over last year.

A TAX OF 10 PER CENT ON OPERATING REVENUES

The proper way to tax passenger trips and freight shipments on the railways, says the Bache Review, published by the banking firm of J. S. Bache & Co., would be to raise rates 30 per cent and require the railways to pay the government a tax of something like 10 per cent of their gross transportation receipts.

The War Taxation Bill, as noted in last week's issue, proposes a tax of 3 per cent on freight charges and 10 per cent on passenger fares.

The article in the Bache Review says:

Akin, really, to the subject of the great loan and second only in importance to it, is that of taxation, and this week we have the results of the deliberations of a few men—manifestly unfit by reason of lack of expert experience—in the bill formally presented to the House by the Ways and Means Committee. This bill, we understand, is not even the result of careful consultation and discussion by the committee entire, but was put together and pushed through by a very few leaders. With the object of raising a very large amount of money the bill wades in broadcast to hit heads whenever they show themselves prominently, and the measure resulting is in parts full of involved language, is unscientific and, in some instances, dangerous. It will fortunately be whipped into shape by further consideration and debate in the House, and it is hoped and expected that much more reasonable methods will be injected into the procedure, in the Senate.

We will mention only one instance of clumsy approach and execution. It was desired to make transportation yield something to the government; probably because this industry impressed the framers as being very active in operation and scope, with the passing back and forth of much money. Accordingly, freight bills and passenger tickets are taxed, and through vast labor and annoyance in record-keeping and collection, a yield of $77,500,000 is counted upon for the freight bills and $75,000,000 for tickets, or in all something around $150,000,000 to the government.

A more equitable and easily collected tax, if transportation is to be taxed, and one which would be most scientific as well as beneficial to this great industry which indisputably needs help, would be to adopt the plan suggested by a director on one of the Western roads. This is to raise rates 30 per cent for the railroads and require them to pay to the government a tax, say, of 10 per cent on their gross transportation receipts.

The gross transportation receipts of the railroads of the country amount in round figures to $4,000,000,000. An increase of 30 per cent would raise these figures to $5,200,000,000. A 10 per cent tax would give the government $520,000,000. The railroads would get an increase of 17 per cent, which is much less than they need. The tax for the government would be collected without cost, practically through an entry in bookkeeping. There would be absolutely no annoyance to the public and the burden would be so widely distributed that it would not be felt at all—the cost to individuals being infinitesimal. Besides this, there would be saved the services of an army of clerks in calculating taxes on an enormously ramified number of items, at a time when man-service is especially important to the railroads and to the country.

This is an instance of the proper method of taxation, scientific, bearing upon consumption as taxes should, and disturbing nobody. At the same time, a very much larger sum would be turned in to the government than it is proposed to collect by the hetcheling method in the bill.

The House bill includes that attempt to plunder the past, the retro-active tax upon incomes of last year—a proceeding which is confiscatory and probably unconstitutional—it is certainly extremely unfair.

FLASH-LIGHT CROSSING SIGNAL

There has been placed on the market recently an inexpensive highway crossing signal adapted from the Government lighthouse and buoy signals, which use flashing acetylene lights. The crossing signal consists of a weather-proof lantern so arranged as to throw a brilliant white light in intermittent flashes on the face of existing crossing signs or warnings. Simultaneously, through a red lens in the opposite side of the lantern a flashlight gives warning to approaching wayfarers as far away as they can see it; and the flash attracts attention.

The light is furnished by acetylene gas, compressed. It is in principle like the acetylene flash-light used extensively in semaphore signals on the Boston & Maine. It may be controlled by track circuit like any crossing signal, and only give warning upon the approach of a train; or it may be made to flash continuously. The reservoir, a steel cylinder, contains sufficient gas to run the signal continuously day and night for about 90 days, but if operated only upon the approach of trains it will last a year, or much longer, according to the frequency of trains. The cost of gas per signal will be less than four dollars a year.

The signal indicates "clear" only when the control of its power is active; and "stop" and "caution" when the control of the power is inactive; a closed circuit proposition. It gives the driver of an automobile, through its red flashing light, a distant signal which may be seen for a distance of

about 300 ft. in the daytime and much further at night, and also a home signal of brilliant white light thrown upon the warning letters of the crossing sign.

Acetylene gas lights have proved very effective in penetrating fogs, and extensive tests of this signal have proved its efficiency. This signal is manufactured by the A. G. A. Railway Light & Signal Company, Elizabeth, N. J.

"DOING HER BIT"

In order to let an able-bodied man go to war, Miss Marie Travers, of Cincinnati, Ohio, has become one of the first "flagwomen" in the United States. She was hired by the Baltimore & Ohio Southwestern in Cincinnati and was sent to New Albany, Ind., where she is now safeguarding traffic at a busy crossing. The crippled railroader who was there replaced a sturdy young man in Seymour, Ind., and Miss Travers has seen her desire to be of patriotic assistance fulfilled.

Twelve hours a day—from 6 o'clock in the morning—Miss Travers is on duty. No sooner did she start work than she began to demonstrate the difference between a flagman

Miss Marie Travers, a "Flagwoman" on the B. & O. Southwestern

and a flagwoman. Passersby first noticed her washing the windows in the dingy little shanty where she remains between trains. Next curtains appeared at the windows and the housecleaning activities extended to scrubbing the floor and making the interior attractive with deft little feminine touches. Outside the shanty she has planted trailing vines and a tiny garden. Miss Travers is 45 years old. Until she became a flagwoman she lived on the income of an estate which was, and still is, ample for all her wants. A raw, pelting rain the first day she worked did not discourage her. Miss Travers was attracted to her present job by the announcement of the Baltimore & Ohio Southwestern, that much railroad work now performed by men could be done equally well by women.

A NEW KIND OF RAIL TROUBLE

A number of railway men are now deeply interested in a new rail problem which has appeared within the last few months and which is evidenced by the progressive formation of lips at the ends of the rails which chip off and soon create bad riding joints. The metal evidently flows longitudinally until the pressure on the adjoining rails causes it to break out. Measurements have shown that the depth of these breaks is as much as 1/16 in.

While present observations lead one to believe that this action is confined to rails rolled recently, it is evidently not limited to those from any one mill or group of mills. Neither is it confined to any particular type of joint for it has been found in rails with both patented joints and plain angle bars. Analyses of the metals in such rails has shown them to be as sound and homogeneous as might reasonably be expected without any indications of soft steel. Microscopic examinations have also failed to indicate any difference in the structure of the metal which might suggest a decarburized surface or envelope about the head of the rail. This would indicate that the cause will be found in some mechanical action.

It has been suggested that the common practice of leaving a small burr on the end of the top of the rail head because of an insufficient amount of filing after the end of the rail has been chipped free of the burr left by the hot saws might contribute in some measure to this trouble. In an endeavor to eliminate the bevel at the end of the rail which leads to early battering this burr is not always filed entirely off. The elongation of this burr under traffic until it chips off might lead to the results described.

There would seem also to be no reason why rail steel should not flow longitudinally as well as transversely with respect to the track. It is commonly conceded that rail steel flows transversely, particularly during the first few months of service and it would not be surprising if similar flow is extended longitudinally. This might readily lead to the conditions in question. If this flow bridges over the open space of the joint, the expansion during warm weather will lead to the nicking out of the section.

Another explanation is offered by the fact that rails differ in height more than might be commonly expected and this variation probably increases with the height of the section. This condition has been overcome on street railway lines by grinding the rail heads to a common level and it has been suggested that the grinding of the rail heads at the joint may be one means of eliminating the present trouble.

Up to the present time the causes of this condition have not been explained satisfactorily. However, further investigations and experiments now under way may lead to their determination.

No Coal for Hamburg Elevated Road.—The shortage of fuel in Germany, which is causing great inconvenience, has made necessary the suspension of service in Hamburg and the adjoining City of Altona by the Hamburg elevated railway.

Railway Workshops in South Manchuria Described.—Copies of a pamphlet issued by the South Manchuria Railway Company entitled South Manchuria Railway Workshops, Shakako, Dairen, have been forwarded to the Bureau of Foreign and Domestic Commerce from Dairen by Consul A. A. Williamson. The pamphlets are descriptive and well illustrated and contain specifications and illustrations of locomotives and cars built at the works. These copies may be inspected at the Bureau of Foreign and Domestic Commerce or its district offices. Refer to file No. 86996.—*Commerce Report.*

General News Department

The Canadian Railway Club, at its meeting held on May 8, chose G. E. Smart as president for the ensuing year.

In the state of Tennessee the railways now are required by law to pay their employees twice a month. The pay days of the Southern Railway are the first and the fifteenth.

The American Society of Civil Engineers, through its executive committee, has abandoned the convention of this association for 1917. This action was brought about largely by the action of the War Department in calling for nine railway engineer regiments for immediate service in France.

Further detailed testimony regarding the valuation of the lands of the Atlanta, Birmingham & Atlantic and its subsidiary companies is being presented this week in Washington before Examiner Staples of the division of valuation of the Interstate Commerce Commission, in connection with the protest filed by the railroad against the tentative valuation of its property.

The freight clerks of the New York, New Haven & Hartford have been granted an 8 per cent increase in wages, and more favorable vacations. They are to be allowed two Saturday half holidays each month, with pay, and vacations as follows: Clerks with the company one year, one week; with the company two years, ten days; with the company five years and more, two weeks.

A copy of President Wilson's proclamation, calling upon citizens in every occupation to "do their bit" in helping to win the war, will be placed in the hands of every one of the quarter of a million employees of the Pennsylvania Railroad System on the lines both East and West of Pittsburgh. The proclamation has been reprinted for this purpose in the form of a small booklet bearing the national emblem in colors on the cover.

As a result of the postponement of the annual convention of the Railway Storekeepers' Association, which was to have been held at Chicago on May 21, the annual meeting of the Railway Materials Association will not be held. If the convention of the Storekeepers' Association is held later in the year, the executive committee of the Railway Materials Association will meet for the purpose of deciding whether that association also shall meet.

The Southern Railway is to put up at once two telephone circuits between Spencer, N. C., and Atlanta, Ga., 314 miles; one for use in train despatching and one for messages. With the completion of these lines the company will have two circuits throughout its main line from Washington to Atlanta, and the two will provide a third or phantom circuit. Besides this these wires will provide also a simplex telegraph circuit for use between the principal division terminals.

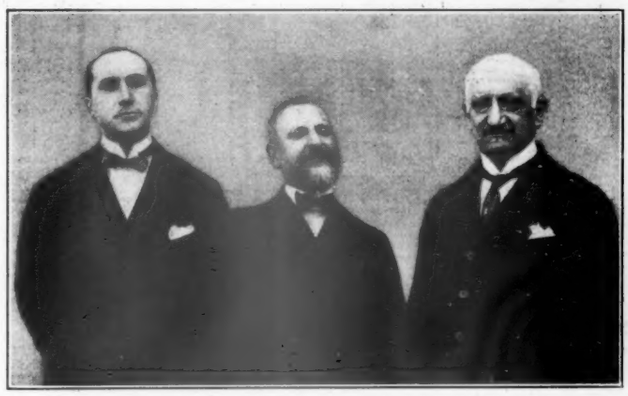
J. M. Hannaford, president of the Northern Pacific, has issued a statement authorizing bonuses for "unorganized" employees, which will aggregate about $750,000. This increase in compensation follows an advance of five per cent made last October, the difference being that the bonus now announced takes in employees whose salaries run up to $3,000 a year, whereas the increase granted last October applied only to those whose salaries were below $2,000. The statement sets forth that in view of the continued increase in the cost of living, employees in service on July 1, 1917, will be granted a bonus of 10 per cent of their wages between January 1 and July 1, except where service has not been continuous and where the wages of employees are fixed by contracts or schedules made by collective agreement. It is further stated that similar bonus payments will be considered from time to time, as conditions warrant.

Samuel Rea, president of the Pennsylvania Railroad, has written a letter to Governor Brumbaugh, of Pennsylvania, urging him to support the law designed to nullify the "full-crew" law of Pennsylvania during the period of the war and for six months thereafter. Mr. Rea speaks not only as the president of the most important railroad in that state but also as a member of the committee of railroad executives now sitting at Washington and directing the affairs of the railroads of the whole country. The letter calls attention to the large waste of man-power caused by the "full-crew" laws, and says: "I realize that formerly you did not share the view that I so strongly entertain as to the wasteful and burdensome character of this law, but while recognizing this and recognizing further that your approval of the law was induced by the belief on your part that under ordinary conditions the employment of the number of extra men on trains which it calls for was judicious, the conditions now confronting us are so radically different from those which existed at the time of its passage that I feel I am justified in appealing to you to take the action above indicated. . . . The railroad men themselves will not want to be restricted by law when the times and conditions call for active employment of railroad men in capacities in which their services will be productive of 100 per cent benefit, rather than have them in a service which is uncertain and intermittent."

Italian Commission May Spend $20,000,000 for Supplies

The Italian War Commission, the first members of which arrived in New York a week ago Wednesday, may direct the placing of orders in this country during their stay here for about $20,000,000 worth of railway cars, locomotives and rails.

Prince Ferdinando di Savoia, a naval captain, is to be the head of the commission, but he and Guglielmo Marconi, the inventor of the wireless telegraph, who is also a member of the commission, did not come with the first representatives. The six who arrived include Alvise Bragadini of the transportation department; General Guglielmetti, military attaché; Enrico Arlotta, minister of maritime and railway transportation; Commander Vannutelli, representing the navy; G. Pardo, of the department of industry and commerce, and Gaetano Pietra, of the agricultural department.



Copyright Underwood & Underwood, N. Y.

Members of the Italian War Commission. From Left to Right: Alvise Bragadini of the Transportation Department; General Gugliemetti, Military Attaché, and Enrico Arlotta, Minister of Maritime and Railway Transportation.

The commission is to take up a number of matters, one of them being the purchase of railway supplies. The United States has recently loaned $100,000,000 to the Italian government. It is understood that about $20,000,000 of this loan will be expended here in the purchase of railroad equipment, or more particularly for 250 locomotives, 5,000 cars and 60,000 tons of rails. The Italian State Railways already have a number of locomotives on order in this country, and specific inquiries for 4,300 cars for Italy were put out two months ago, but definite action was postponed until financial arrangements should have been completed.

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH, 1917

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses							Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.				
Alabama & Vicksburg	143	$110,175	$34,088	$163,750	$17,865	$30,014	$4,920	$54,952	$588	$6,386	$114,726	$49,023	$9,700	$39,324	$19,144
Alabama Great Southern	312	367,491	114,912	523,917	70,874	111,186	19,185	165,228	1,915	11,397	379,784	144.132	19,496	124,636	—26,405
Ann Arbor	294	149,608	39,604	202,444	13,435	42,579	5,266	122,464	284	7,679	191,707	10,737	13,100	—2,366	—69,695
Atchison, Topeka & Santa Fe	8,648	8,367,187	2,378,295	11,620,520	1,072,189	1,843,918	184,197	3,462,277	14,530	252,537	6,729,073	4,891,447	550,179	4,340,069	858,900
Atlanta & West Point	93	78,057	49,490	144,296	16,259	22,686	6,901	49,894	2,394	5,051	103,185	41,111	7.195	33,906	8,372
Atlantic & St. Lawrence	167	124,204	17,915	159,200	30,602	31,385	4,315	130,659	.....	9,712	206,672	—47,472	10,721	—58,193	—92,152
Atlantic City	170	88,202	72,472	176,004	27,407	26,278	5,393	106,849	99	552	166,511	9,493	10,000	—507	2,086
Atlantic Coast Line	4,776	2,593,300	1,123,120	4,049,276	407,635	539,398	66,145	1,299,017	23,943	80,193	2,401,832	1,638,443	188,000	1,447,912	110,624
Baltimore & Ohio	4,545	7,591,105	1,300,041	9,692,766	1,096,896	1,917,355	195,157	4,689,166	72,115	256,702	8,223,959	1,468,807	313,198	1,154,988	—690,870
Baltimore, Chesapeake & Atlantic	88	63,012	21,430	87,647	3,122	13,599	929	49,737	.....	3,672	71,060	16,587	2,291	14,296	5,501
Bangor & Aroostook	632	390,490	67,379	478,457	50,334	71,194	3,722	168,453	4,078	12,853	310,634	167,823	15,000	152,823	74,762
Belt Ry. Co. of Chicago	31	.....	.....	318,270	18,040	42,760	1,303	158,797	.....	6,700	227,601	90,669	13,898	76,771	12,294
Bingham & Garfield	36	227,419	5,922	235,689	22,147	33,298	1,168	37,376	44	3,679	97,712	137,977	29,029	108,948	—5,998
Boston & Maine	2,305	2,893,766	1,285,661	4,734,582	479,352	703,401	36,426	2,619,614	21,579	149,694	4,010,067	724,515	171,359	553,155	—376,065
Canadian Pacific Lines in Maine	234	327,548	15,829	355,239	16,846	52,829	5,838	142,692	.....	5,027	223,232	132,007	5,500	126,507	—3,628
Carolina, Clinchfield & Ohio of S. C.	18	15,488	1,220	17,340	2,775	103	2,686	3,321	.....	1,202	10,088	7,252	600	6,649	423
Carolina, Clinchfield & Ohio	283	290,678	19,654	317,529	31,894	53,107	16,366	76,850	.....	13,395	191,312	126,217	13,400	112,817	—9,290
Central of New Jersey	684	2,218,821	464,832	2,916,223	212,146	543,631	26,008	1,118,737	17,995	64,422	1,982,938	933,285	149,581	783,645	52,435
Central New England	301	401,110	30,181	453,364	73,511	41,873	1,328	172,446	550	8,528	298.234	154,130	19,600	134,480	73,069
Central Vermont	411	347,816	69,522	355,503	32,379	56,986	7,338	195,485	2,366	9,164	303,717	51,786	15,565	36,201	—32,165
Charleston & Western Carolina	342	156,875	28,943	194,340	25,186	21,935	4,320	66,835	.....	3,450	121,594	72,746	6,500	66,241	—708
Chesapeake & Ohio Lines	2,380	3,581,116	550,959	4,465,765	510,610	859,867	58,692	1,439,082	26,177	94,251	2,987,082	1,478,684	134,500	1,343,103	121,876
Chicago & Eastern Illinois	1,131	1,313,643	264,435	1,730,188	170,527	444,434	26,118	628,995	11,881	37,547	1,315,167	415.021	62,500	352,300	60,630
Chicago & Erie	270	613,199	40,081	708,802	54,293	95,958	18,615	312,906	4,005	18,064	500,588	208,214	31,275	176,939	—42,560
Chicago, Burlington & Quincy	9,373	7,037,304	1,738,034	9,691,863	1,044,189	1,454,229	143,632	3,227,102	143,826	218,610	6,231,587	3,460,277	421,679	3,038,598	—315,331
Chicago, Detroit & Can. Gd. Trk Jctn.	50	51,027	15,696	88,190	10,158	14,462	1,455	46,627	.....	1,676	74,378	13,812	3,546	10,266	—9,571
Chicago, Indianapolis & Louisville	654	526,895	160,714	750,966	81,647	129,822	20,701	279,941	402	18,893	530,152	220,814	35,692	185,075	—15,302
Chicago, Milwaukee & St. Paul	10,222	6,369,195	1,484,799	8,757,232	697,627	1,479,421	158,242	3,688,752	61,846	162,575	6,183,252	2,573,980	458,581	2,108,923	—749,482
Chicago, Rock Island & Gulf	477	228,110	62,822	312,131	39,740	39,634	10,583	102,413	1,203	9,826	203,394	108,737	10,000	98,723	44,697
Chicago, Rock Island & Pacific	7,656	4,747,033	1,619,920	6,935,679	888,355	1,294,097	139,641	2,631,484	43,124	174,441	5.156,373	1,779,306	305,668	1,472,955	—299,381
Chicago, St. Paul, Minn. & Omaha	1,753	1,088,160	415,116	1,633,975	194,656	236,635	27,272	725,232	17,496	45,056	1,245,305	388,670	87,930	300,418	—213,038
Cincinnati, Indianapolis & Western	322	171,668	45,356	237,802	27,728	40,910	7,327	104,867	488	7,320	188,604	49,199	10,166	39,052	4,262
Cincinnati, New Orleans & Tex. Pacific	337	760,492	206,966	1,051,048	98,632	225,713	31,704	337,084	18,056	19,832	731,022	320,026	36,400	283,626	—4,304
Cincinnati Northern	246	152,112	15,022	172,276	27,311	32,852	3,790	82,253	.....	3,203	148,620	23,656	7,000	16,656	—33,146
Cleveland, Cincinnati, Chic. & St. L.	2,387	2,937,223	827,468	4,115,347	330,565	686,368	96,778	1,721,191	24,733	86,264	2,942,917	1,172,430	160,000	1,012,005	—131,829
Colorado Midland	338	79,147	8,748	96,424	15,640	32,547	6,642	48,977	543	5,307	109,656	—13,232	9,000	—22,232	—16,024
Colorado & Southern	1,103	648,591	112,634	821,695	79,875	139,104	10,610	238,021	5,389	25,236	498,235	323,460	44,737	278,702	86,274
Cripple Creek & Colorado Springs	87	94,024	11,287	107,830	9,765	13,980	1,443	24,890	.....	2,984	53,063	54,768	3,000	51,768	—7,528
Cumberland Valley	164	314,740	56,397	387,588	26,268	34,281	4,182	118,576	926	11,805	195,030	192,558	13,054	179,505	27,605
Delaware & Hudson Co.—R. R. Dept.	886	2,150,111	200,595	2,461,348	204,892	528,033	26,030	1,089,548	16,580	84,447	1,948,483	512,865	61,420	449,107	—19,343
Denver & Rio Grande	2,578	1,854,715	297,265	2,286,313	233,393	436,711	39,645	682,624	28,571	62,962	1,481,341	804,972	90,000	714,514	21,546
Denver & Salt Lake	255	96,814	18,912	120,555	29,724	42,205	2,220	72,814	.....	5,601	152,556	—32,001	8,250	—40,256	—43,946
Detroit & Mackinac	383	84,666	23,882	115,595	11,089	29,286	2,060	38,684	.....	3,585	84,704	30,891	8,000	22,891	—1,268
Detroit & Toledo Shore Line	81	164,412	.....	172,071	9,472	10,523	1,607	48,472	.....	3,746	73,820	98,251	9,200	88,961	—19,372
Detroit, Grand Haven & Milwaukee	191	193,000	41,000	278,131	33,467	44,299	5,140	163,875	.....	5,744	252,525	25,606	3,620	21,830	—8,918
Detroit, Toledo & Ironton	441	198,688	11,793	226,588	21,205	30,812	4,567	133,229	.....	7,251	197,064	29,524	8,000	21,388	14,161
Duluth, South Shore & Atlantic	600	263,318	66,017	344,630	47,351	42,420	7,401	135,657	3,817	8,606	245,253	99,373	18,000	81,364	36,039
Duluth, Winnipeg & Pacific	191	191,655	27,371	222,129	16,093	29,908	2,401	84,862	667	5,317	139,249	82,881	11,106	71,774	—16,974
El Paso & Southwestern Co.	1,028	968,869	196,215	1,230,721	104,823	148,142	21,468	307,752	7,094	26,329	616,208	614,512	38,643	575,857	174,734
Erie	1,988	4,120,327	726,938	5,412,142	498,516	1,437,729	90,216	2,606,414	35,002	126,336	4,790,144	621,998	224,485	396,968	—437,948
Florida East Coast	765	316,151	423,313	893,895	76,300	78,587	7,443	210,701	8,354	15,597	394,868	499,027	41,508	457,507	—99,639
Fort Worth & Denver City	454	325,100	118,902	470,948	59,605	83,522	6,692	139,385	2,406	18,061	309,671	161,277	18,500	142,777	24,021
Galveston, Harrisburg & San Antonio	1,361	1,109,958	433,959	1,640,329	226,660	230,265	37,269	570,285	12,740	42,925	1,114,140	526,190	55,073	469,943	218,891
Galveston Wharf Co	14	.....	.....	119,017	1,194	1,166	239	49,820	21,995	668	75,082	43,935	10,500	33,435	—8,629
Georgia	307	213,966	69,363	308,547	27,888	46,218	12,817	128,715	119	11,772	227,418	81,129	5,890	75,235	—11,557
Grand Canyon	64	494	28,469	40,436	10,830	1,693	707	15,696	.....	218	29,135	11,301	1,463	9,838	—24,581
Grand Rapids & Indiana	575	386,912	123,502	552,098	65,855	96,636	9,005	267,536	423	18,825	458,279	93,818	22,205	71,609	7,531
Grand Trunk Western	347	454,000	117,000	716,482	63,375	142,466	16,710	338,868	6,083	19,071	586,572	129,910	37,235	92,662	—105,873
Great Northern	8,195	4,190,361	1,171,257	6,006,910	790,129	1,064,690	107,744	2,359,447	83.222	111,144	4,431,453	1,575,457	449,229	1,125,558	—897,847
Gulf & Ship Island	308	121.659	29,895	160,513	30,459	26,111	2,536	46,761	397	7,903	113,917	46.596	8,635	37,848	—27,793
Gulf, Colorado & Santa Fe	1,937	996,324	236,462	1,333,183	248,000	204,708	32,881	464,498	.....	59,027	1,007,984	325,200	59,483	265,424	37,723
Gulf, Mobile & Northern	402	133,348	25,846	170,050	25,882	28,370	3,574	57,323	14	8,123	123,286	46,764	8,421	38,343	—9,951
Hocking Valley	350	654,501	70,715	756,266	62,479	191,977	8,606	238,262	.....	18,252	519,575	236,690	49,000	187,690	117,688
Houston, East & West Texas	191	116,788	30,325	158,274	14,254	21,098	2,239	46,524	712	3,505	88,322	69,952	6,281	63,542	27,880
Houston & Texas Central	918	415,780	131,738	598,923	87,733	79,961	18,132	210,603	4,702	20,997	421,041	177.882	31,302	145,624	67,088
International & Great Northern	1,159	582,578	216,830	868,341	131,056	142,779	25,556	365,026	5,163	29,878	676,519	191,822	39,638	151,732	47,257
Kansas City, Mexico & Orient of Texas	466	86,513	15,373	107,204	23,159	24,474	3,788	50,319	.....	4,882	106,623	581	5,000	—4,472	1,255
Kansas City Southern	837	861,653	136,140	1,075,376	100,681	140,875	27,530	354,089	.....	36,011	657,012	418,364	58,055	359,770	40,200
Lake Erie & Western	900	600,186	54,032	682,310	65,586	110,733	12,968	273,726	.....	15,226	478,238	204,072	27,000	176,882	—12,514
Lehigh & Hudson River	97	161,658	3,872	176,535	11,469	28,446	1,431	69,814	.....	4,503	115,662	60,873	5,600	55,273	14,116
Lehigh & New England	296	251,537	1,433	264,537	35,951	45,658	2,681	90,671	.....	8,822	183,781	80,756	10,335	70,421	—50,971

REVENUES AND EXPENSES OF RAILWAYS

MONTH OF MARCH, 1917—CONTINUED

Name of road.	Average mileage operated during period.	Operating revenues			Operating expenses							Net from railway operation.	Railway tax accruals.	Operating income (or loss).	Increase (or decr.) comp. with last year.
					Maintenance of										
		Freight.	Passenger.	Total (inc. misc.)	Way and structures.	Equipment.	Traffic.	Transportation.	Miscellaneous.	General.	Total.				
Lehigh Valley	1,442	$3,665,079	$327,344	$4,322,092	$438,339	$753,187	$75,468	$1,933,697	$15,597	$87,588	$3,300,404	$1,021,688	$167,500	$854,083	—$145,880
Long Island	397	346,451	563,783	1,047,316	159,920	144,702	9,055	563,239	12,205	39,720	927,915	119,401	71,346	47,929	—66,745
Los Angeles & Salt Lake	1,154	766,917	264,045	1,114,201	110,973	155,976	33,136	309,749	19,687	24,596	652,234	461,967	54,145	407,791	27,562
Louisiana Ry. & Navigation Co	342	144,001	24,363	180,909	30,699	25,517	6,744	71,724	.....	6,879	141,563	39,346	14,500	24,734	—2,033
Louisville & Nashville	5,070	4,406,499	1,146,122	5,957,882	761,719	1,112,954	126,686	1,983,384	37,065	117,518	4,118,190	1,839,692	288,871	1,550,445	—160,527
Louisville, Henderson & St. Louis	200	133,426	32,713	176,088	23,180	16,441	4,706	55,250	.....	4,166	103,743	72,345	4,300	67,819	24,873
Midland Valley	385	156,746	46,164	211,266	43,309	46,684	2,775	68,429	.....	10,566	171,763	39,502	5,138	34,333	9,734
Mineral Range	120	98,997	2,873	104,111	19,730	20,067	390	60,185	.....	1,002	101,373	2,738	3,000	—262	—3,142
Minneapolis & St. Louis	1,647	672,817	142,579	875,147	124,587	89,318	17,054	362,701	86	21,391	615,093	260,053	43,807	216,217	—69,156
Minn., St. Paul & S. S. Marie	4,228	1,797,220	454,744	2,454,037	252,928	402,691	55,429	987,097	16,433	66,388	1,770,147	683,890	120,518	563,373	—728,308
Missouri & North Arkansas	365	81,215	31,682	121,274	23,057	18,104	4,089	44,569	.....	4,723	94,502	26,772	4,800	21,848	21,455
Missouri, Kansas & Texas System	3,865	2,225,579	712,730	3,201,158	632,191	592,414	63,336	1,224,017	23,868	100,841	2,636,577	564,581	131,768	430,532	351,062
Missouri, Oklahoma & Gulf	334	113,154	20,406	140,599	23,333	28,141	4,100	75,481	289	7,499	138,843	1,756	10,898	—9,143	—1,690
Missouri, Oklahoma & Gulf of Texas	134	20,342	490	21,723	3,153	2,245	1,816	9,870	.....	1,710	18,795	2,928	184	2,744	4,006
Missouri Pacific	3,756	2,291,993	384,195	3,920,981	446,093	492,527	65,799	1,095,468	7,167	65,189	2,159,407	761,574	143,000	616,850	89,203
Mobile & Ohio	1,160	893,947	115,926	1,067,643	121,606	227,947	38,495	369,014	2,534	31,350	790,946	276,697	43,648	232,877	—36,799
Monongahela	108	162,200	11,199	176,573	31,700	11,550	705	43,869	.....	3,748	91,573	85,000	6,000	79,000	—15,400
Monongahela Connecting	6	.....	.....	201,818	41,097	25,637	330	72,968	.....	3,808	143,840	57,978	1,894	56,084	48,273
Nashville, Chattanooga & St. Louis	1,237	822,620	242,091	1,175,238	116,544	228,194	52,816	476,291	13,502	35,787	922,689	252,549	30,000	222,213	12,476
Nevada Northern	165	176,943	11,885	193,446	17,496	20,156	744	36,526	122	5,144	80,188	113,259	8,000	105,258	10,535
New Orleans & North Eastern	204	270,280	48,626	353,275	43,436	62,472	11,546	112,025	3,661	12,452	245,592	107,683	19,500	88,183	—7,848
New York Central Railroad	6,083	12,291,563	4,088,124	18,931,729	1,806,915	3,425,836	270,357	2,922,002	249,729	449,718	14,124,557	4,807,173	967,379	3,837,687	—1,577,131
New York, New Haven & Hartford	1,988	3,520,080	2,477,433	6,923,847	598,160	953,805	35,886	3,116,920	101,148	192,694	4,997,514	1,926,333	278,000	1,647,491	309,370
New York, Ontario & Western	568	505,355	72,388	683,339	63,628	146,293	8,623	324,031	.....	20,891	563,467	119,872	18,000	101,875	33,734
New York, Philadelphia & Norfolk	112	284,198	41,399	353,718	53,999	81,635	4,786	163,271	5,332	13,836	322,857	30,861	13,500	17,350	—104,964
New York, Susquehanna & Western	135	229,317	48,874	308,019	27,606	29,433	1,715	170,995	.....	5,213	233,800	74,218	16,167	57,891	—19,228
Norfolk & Western	2,085	4,491,086	438,382	5,119,115	478,160	1,032,833	66,009	1,446,168	10,437	93,959	3,118,780	2,000,335	250,000	1,750,245	—402,102
Northwestern Pacific	507	156,347	130,921	325,802	68,725	50,290	4,763	124,198	789	10,725	257,970	67,832	18,457	49,361	1,197
Oahu Railway & Land Co	114	74,227	21,343	105,236	14,195	9,206	878	28,565	.....	5,148	57,993	47,243	10,188	37,055	—7,421
Oregon Short Line	2,307	1,719,183	414,144	2,300,884	263,974	261,521	36,252	615,952	38,898	76,745	1,293,335	1,007,549	143,410	863,125	—2,256
Oregon-Washington R. R. & Nav. Co.	2,052	1,040,616	373,199	1,544,484	261,146	179,643	46,532	543,248	21,129	81,123	1,131,483	413,000	99,600	313,142	—6,532
Panhandle & Santa Fe	670	442,031	85,205	549,472	69,099	97,081	4,346	140,455	.....	12,082	322,969	226,503	13,992	212,268	40,636
Pennsylvania Company	1,755	4,272,575	1,043,978	5,895,608	743,789	1,177,290	85,243	2,830,373	44,735	159,910	5,039,521	856,087	348,338	507,689	—953,697
Pennsylvania Railroad	4,536	15,714,458	3,799,143	21,581,463	2,678,209	4,437,192	222,065	8,443,471	335,622	512,467	16,625,201	4,956,262	735,882	4,218,389	82,048
Pere Marquette	2,249	1,463,531	332,657	1,996,408	132,085	525,510	30,996	932,631	4,703	46,660	1,672,214	324,194	47,432	276,584	—282,434
Philadelphia & Reading	1,127	4,648,413	563,583	5,562,557	294,334	1,074,536	52,062	2,292,180	13,167	86,625	3,810,916	1,751,641	138,164	1,612,759	—686,373
Philadelphia, Baltimore & Washington	718	1,169,960	1,011,617	2,407,720	328,308	477,105	31,080	1,063,332	187	57,059	1,954,330	453,390	62,608	390,766	—85,849
Pittsburgh & Lake Erie	225	1,690,436	167,079	2,053,697	247,579	429,606	15,535	624,777	5,676	38,051	1,361,223	692,474	85,200	607,274	—402,177
Pittsburgh, Cincinnati, Chic. & St. L.	2,399	4,642,122	1,034,515	6,340,660	787,501	1,226,734	101,609	2,529,426	44,806	145,741	4,835,328	1,505,332	232,444	1,272,880	163,518
Pittsburgh, Shawmut & Northern	205	114,516	5,963	123,038	12,046	55,488	1,448	45,104	.....	4,826	118,913	4,125	1,826	2,299	—43,731
Port Reading	21	153,051	.....	175,616	6,803	11,403	39	92,425	.....	182	110,851	64,765	10,000	54,765	50,833
Richmond, Fredericksburg & Potomac	88	188,851	151,155	387,881	32,542	39,310	3,378	135,877	5,242	8,215	224,565	163,315	11,184	152,109	12,012
Rutland	468	218,829	95,199	358,271	39,793	63,609	9,205	147,766	1,035	8,037	269,444	88,827	17,865	79,962	7,172
St. Joseph & Grand Island	258	153,195	23,819	186,899	67,315	23,224	3,685	64,638	59	5,092	164,014	22,885	8,830	14,056	—16,684
St. Louis, Brownsville & Mexico	548	187,334	129,017	340,036	56,376	45,424	10,947	100,173	.....	12,320	222,946	117,090	8,000	109,090	75,562
St. Louis, Iron Mountain & Southern	3,539	2,409,900	652,698	3,340,150	502,170	553,884	80,311	979,607	12,515	68,409	2,191,385	1,148,764	166,607	980,460	499,814
St. Louis, San Francisco & Texas	244	63,332	24,271	98,091	12,530	12,302	2,239	43,963	.....	8,503	79,537	18,554	1,491	17,063	6,920
St. Louis Southwestern	94	763,782	130,336	941,866	93,636	167,506	31,083	222,559	2,471	25,845	542,901	398,965	34,039	364,907	73,967
St. Louis Southwestern of Texas	811	299,477	80,518	412,793	71,648	118,027	14,542	181,652	1,105	19,675	404,888	7,905	18,410	—10,562	27,146
San Antonio & Aransas Pass	726	206,899	68,371	299,931	70,719	58,327	7,155	150,488	.....	13,802	299,778	153	15,000	—14,922	18,664
Seaboard	3,461	1,790,814	615,262	2,685,542	271,718	356,598	86,098	980,442	25,731	69,807	1,786,985	898,557	112,500	785,135	—59,737
Southern	6,983	4,899,535	1,534,788	7,106,864	732,177	1,099,346	177,530	2,504,525	66,804	194,755	4,761,304	2,345,560	294,668	2,045,534	94,874
Southern in Mississippi	281	54,128	27,026	89,344	23,787	11,127	2,430	43,144	.....	5,013	85,502	3,843	9,547	—5,724	716
Spokane, Portland & Seattle	554	349,678	107,653	486,897	65,444	41,280	6,489	101,354	4,209	13,657	232,131	254,766	58,300	196,342	107,474
Tennessee Central	295	95,350	29,294	134,618	21,604	21,253	5,060	50,972	.....	6,462	105,351	29,267	4,800	24,467	7,594
Texas & New Orleans	468	341,086	119,671	505,007	61,129	79,231	10,332	174,415	11,731	12,796	349,617	155,390	20,594	134,405	91,498
Toledo & Ohio Central	436	495,470	44,940	565,084	73,779	127,735	6,425	252,580	1,746	10,245	472,510	92,573	24,729	67,845	—40,462
Toledo, Peoria & Western	248	61,950	33,207	101,405	17,431	27,807	2,606	43,590	.....	5,156	96,590	4,815	7,500	—2,685	—8,008
Toledo, St. Louis & Western	451	476,556	28,464	533,532	86,183	96,842	17,430	191,426	.....	9,274	401,155	132,376	19,000	113,376	—32,328
Ulster & Delaware	129	28,861	12,227	60,763	8,930	11,578	1,599	29,196	342	3,706	55,352	5,411	4,000	1,380	—15,704
Union Pacific	3,622	3,965,529	910,772	5,413,677	745,511	761,814	110,438	1,747,813	105,314	170,167	3,626,553	1,787,123	298,600	1,488,012	—674,226
Union R. R. of Baltimore	8	138,194	33,265	173,599	5,078	.....	.....	6,793	.....	2,240	14,111	159,488	7,361	152,126	16,835
Vicksburg, Shreveport & Pacific	171	106,183	40,222	174,737	18,386	27,573	4,936	58,697	1,578	4,796	115,966	58,771	10,225	48,546	23,732
Wabash-Pittsburgh Terminal	63	91,118	9,082	108,479	16,277	23,670	2,950	50,727	2,310	4,289	100,224	8,256	7,734	—847	—9,898
Washington Southern	36	61,838	89,220	196,526	13,683	18,785	1,396	64,690	2,332	3,634	104,520	92,005	5,353	86,632	23,569
West Jersey & Seashore	359	230,134	311,112	590,238	116,240	102,624	11,743	298,629	4,045	18,967	552,201	38,038	39,584	—1,578	—43,380
Western Maryland	775	962,064	76,971	1,111,503	114,073	180,385	22,900	416,680	11,646	31,610	777,170	334,334	36,500	297,834	29,552
Western Pacific	958	630,997	99,005	763,227	123,352	67,955	19,953	229,458	10,482	22,427	473,627	289,599	36,306	253,285	63,131
Western Railway of Alabama	133	83,633	46,596	144,277	15,879	25,694	6,396	47,370	2,187	4,271	101,747	42,531	6,064	36,467	21,604
Wichita Valley	257	50,529	16,470	72,042	4,019	5,723	181	21,330	.....	1,216	32,469	39,572	3,850	35,722	8,096

The "Philadelphia Plan"

The "Philadelphia Plan" for amending Federal transportation laws and for action looking to the entire abolition of state control of railway common carriers, which plan was adopted by committees of commercial interests in that city a year ago, is to be made the subject of a new campaign, designed to enlist the co-operation of commercial interests throughout the country. The "Plan" seeks legislation by Congress providing for Federal incorporation of interstate carriers; enlargement and reorganization of the Interstate Commerce Commission into regional commissions, and an appellate body at Washington; extension of the commission's powers to legalization of economic and waste-eliminating agreements and co-operations by carriers; and delegation of the commission's present powers of investigation and prosecution to some other agency of the National Government.

The plan asks that definite and clearly marked powers be conferred on the reorganized commission, among the essential ones being the settlement of labor disputes; protection of investors against unwise competition resulting in uneconomic waste, and supervision of issues of securities.

Women Railroad Employees on the Baltimore & Ohio

Following a conference several weeks ago between J. M. Davis, vice-president of the company's operation and maintenance force, and officials of his staff, the Baltimore & Ohio announced that positions in its shops, in the freight and passenger terminals and other outside places were open to women. Immediately several applications were accepted. At Lorain, Ohio, where the company handles its largest lake coal and ore traffic, women were given positions at the benches in the shops where they can learn the mechanist trade. Others were employed reclaiming scrap material, while others were stationed as crossing watch women, terminal helpers and outside car cleaners.

Women are being given similar positions at other points, several having been employed as crossing watch women, flag women, car oilers and track inspectors. The intention of the railroad is to fill such vacancies with women when men are unavailable, due to enlistments or a scarcity of labor.

The four women wearing overalls are connected with the locomotive and car repair shop. The others, reading from left to right, occupy the positions respectively of oil house superintendent, blacksmith's helper, yard cleaner, clerk in the shop office, and assorter of small supplies and scrap materials.

Women Employed in the Baltimore & Ohio Shops at Lorain, Ohio

New Haven Directors Commend Howard Elliott's Work

At a meeting of the board of directors of the New York, New Haven & Hartford, at New York City on May 8, a resolution was unanimously adopted expressing the appreciation of the board for the earnest and able efforts of Howard Elliott, as chairman of the board and president, to improve the physical and financial condition of the property, and its relations with the public. The resolution reads as follows: "In accepting the resignation of Howard Elliott, the board desires to place on record its sense of his extraordinary services to the company.

"By his personal character he commanded the confidence of the stockholders and secured the good-will of communities which had previously been indifferent or hostile. By his tact he prevented conflict with the public authorities of the nation and the several states. Understanding railroad business in all its aspects, he was equally at home with financiers and with legislators, with shippers and with employees. As a result of this many-sided ability, burdens of all kinds were thrown upon him; burdens more numerous than he anticipated when he came, and heavier than any one man could be asked to bear permanently. These complex burdens he carried with loyalty and devotion as long as was humanly possible.

"We congratulate ourselves that he does not leave us entirely; we congratulate the country that in resigning the presidency of the New Haven road he transfers his services and powers to a still wider field of public activity, to meet emergencies with which he is by nature and training pre-eminently fitted to deal."

Senator Hoke Smith's Proposal

In the discussion of the emergency shipping fleet section of the Deficiency Appropriation bill in the Senate on Wednesday, the bill which authorizes the purchase of ships for carrying freight, Senator Hoke Smith, of Georgia, proposed an amendment appropriating $100,000,000 for the purchase of freight cars. The amendment would reduce to that extent the appropriation for an emergency merchant fleet. The amendment provides that the cars shall be used by railroad companies under such terms and for such compensation as may be approved by the President.

Long Island Food Reserve Battalion

The Long Island will run a special instruction train over its lines from May 21 to 25 in charge of a committee of women of the Long Island Food Reserve Battalion. The purpose is to interest the women of Long Island in organizing clubs for canning, preserving and storing surplus vegetables and other food supplies.

At each stop lectures will be given and an opportunity to inspect the exhibits.

The train will be made up of an auditorium coach for illustrated talks and lectures, a baggage car equipped with complete outfits of various canning implements, jars and crocks and the business car of the Long Island, which will be used as the headquarters of the women in charge. From five to eight stations will be covered daily or 33 in the five days.

Ralph Peters, president of the Long Island Railroad, is president of the Long Island Food Reserve Battalion. The special committee of the battalion, in charge of the train, consists of Mrs. Arthur Scott Burden, Mrs. William Laimbeer, Mrs. Ralph Peters, Mrs. Geo. W. Pierpont, Mrs. W. K. Vanderbilt, Jr., and Mrs. Watson Webb.

Exhibitors at the Fuel Association Convention

The following is a list of exhibitors and their representatives at the convention of the International Railway Fuel Association, which was held at the Hotel Sherman, Chicago, May 14-17:

American Arch Company, New York.—Security sectional arch. Represented by J. T. Anthony, J. P. Neff, H. D. Savage, R. J. Himmelright, W. F. Allison, A. W. Klolse and G. M. Bean.

Barco Brass & Joint Company, Chicago.—Engine tender connections, Barco flexible joint for main reservoir, Barco smokebox blower fitting. Represented by F. N. Bard, C. L. Mellor and Charles Thomas.

Dearborn Chemical Company, Chicago.—Represented by J. D. Purcell, G. R. Carr, J. H. Cooper, J. H. Bowen and Fred S. Hickey.

Detroit Lubricator Company, Detroit, Mich.—Detroit automatic flange lubricator. Represented by A. D. Homard.

Economy Devices Corporation, New York.—Rushton screw reverse gear, Casey-Cavin reverse gear, Ragonnet reverse gear, Universal valve chest and radial buffer and engine truck. Represented by Joseph Sinkler, J. L. Randolph and C. L. Burkholder.

Fairbanks, Morse & Company, Chicago.—Photographs. Represented by J. C. Flanagan.

Foxboro Company, Foxboro, Mass.—Recording gages and thermometers, hydrometers and thermographs, pyrometers and tachometers and time recorders. Represented by F. D. Carrett.

Franklin Railway Supply Company, New York.—Franklin firedoor. Represented by C. W. F. Coffin, W. H. Coyle, S. Rosenfelt and H. M. Evans.

Garlock Packing Company, Palmyra, N. Y.—Garlock packing. Represented by W. G. Cook and C. W. Sullivan.

Gillespie & Company, A. W., Chicago.—Economy firedoor. Represented by A. W. Gillespie and E. H. Bauer.

Hulson Grate Company, Keokuk, Iowa.—Hulson grate for locomotive and stationary boilers. Represented by A. W. Hulson.

Hunt-Spiller Manufacturing Corporation, Boston, Mass.—Hunt-Spiller gun iron. Represented by J. G. Platt and V. W. Ellet.

Jeffery Manufacturing Company, Columbus, Ohio.—Photographs. Represented by P. C. Dierdorff and W. J. Armstrong.

Lehigh Car Wheel & Axle Works, Catasauqua, Pa.—Mill model and photographs. Represented by H. C. Shields and B. Neide.

Leslie Company, Lyndhurst, N. J.—Unito and Presto coupling nuts and steam heat regulators. Represented by J. J. Cizek.

Locomotive Feed Water Heater Company, New York.—Locomotive feed water heater. Represented by E. A. Averill.

Locomotive Pulverized Fuel Company, New York.—Photographs and blueprints. Represented by M. C. M. Hatch.

Locomotive Stoker Company, Pittsburgh, Pa.—Photographs. Represented by W. S. Bartholomew, W. G. Clark, E. S. Lee, E. Prouty, Edward Ryan, W. F. Capps and E. F. Milbank.

Locomotive Superheater Company, New York.—Model of welded superheater unit, pyrometer and grinding tools. Represented by B. G. Lynch, J. E. Mourne, R. R. Porterfield, G. E. Ryder and F. R. Fitzpatrick.

Manning, Maxwell & Moore, Inc., New York.—Inspirators, valves and gages. Represented by C. L. Brown and F. J. Wilson.

Mudge & Company, Chicago.—Mudge-Slater locomotive front end. Represented by Burton W. Mudge, George W. Bender and W. H. Bentley.

National Railway Devices Company, Chicago.—Shoemaker firedoor. Represented by J. G. Robinson and C. J. Gunnison.

Ohio Injector Company, Chicago.—Ohio injector, Chicago flange oiler, Chicago automatic drifting valve, Chicago lubricator, Chicago water glass protector, Chicago boiler check and Chicago hose strainer. Represented by W. S. Furry and A. C. Beckwith.

Perolin Railway Service Company, St. Louis, Mo.—Perolin boiler metal treatment for the removal of scale in locomotive and stationary boilers. Represented by C. M. Viley, J. D. Ristine, R. P. LeVake and W. G. Newell.

Pyle-National Company, Chicago.—Young locomotive valve gear and Pyle-National electric headlight. Represented by R. C. Vilas, W. Miller, J. Will Johnson, J. E. Kilker, W. T. Bretherton, R. L. McIntosh and G. E. Haas.

Railway Age Gazette, New York.—Represented by A. F. Stuebing, L. B. Sherman and J. M. Rutherford.

Railway Review, Chicago.—Represented by J. E. Gougeon and H. A. Smith.

Roberts & Shaefer Company, Chicago.—Represented by Clyde P. Ross and E. E. Barrett.

Robinson Company, Boston, Mass.—Exhaust nozzle. Represented by J. G. Platt and V. W. Ellet.

Tyler Company, W. S., Cleveland, Ohio.—Draftac spark arrester. Represented by J. H. Jackson and A. D. Busch.

Vissering & Co., Harry, Chicago.—Metallic packing and bell ringer, Viloco brake step, throttle valve, Duplex sander control valve. Represented by G. S. Turner and W. H. Heckman.

Vulcan Fuel Economy Company, Chicago.—Draft gage and gas analysis instruments. Represented by F. A. Moreland.

Wyoming Shovel Company, Wyoming, Pa.—Shovels. Represented by F. E. Geer.

American Society of Mechanical Engineers

The spring meeting of the American Society of Mechanical Engineers will be held at Cincinnati, May 21 to 24. The program of the meeting is in part as follows:

Monday, May 21:

10:00 a. m., opening of headquarters and registration at Hotel Sinton; 2:00 p. m., council meeting; 8 p. m., informal reception.

Tuesday, May 22:

10:00 a. m., business meeting followed by professional sessions; machine shop session; general session; 2:30 p. m., joint session with National Machine Tool Builders' Association with two addresses: "The Trend in Engineering Training," Dean Herman Schneider; "The Human Potential in Industry," Dr. Otto P. Geier; 8:15 p. m., smoker for members of the society and of the National Machine Tool Builders' Association; reception for the ladies.

Wednesday, May 23:

10:00 a. m., first munitions session; 2:00 p. m., boat ride to Fern Bank Dam or Water Works; 8:30 p. m., informal dance.

Thursday, May 24:

10:00 a. m., simultaneous sessions; second munitions session, gas power session, industrial safety session.

Short Line Railroad Association of the South

The Short Line Railroad Asociation of the South will meet at the Hotel Ansley, Atlanta, Ga., Thursday, May 24, for a two-day, semi-annual or spring meeting. The following subjects will be discussed: Fifteen Percent Increase in Freight Rates, B. M. Robinson, chairman; Long and Short Haul, 4th Sec. Order No. 3866, G. E. Smith, chairman; Freight Car Per Diem, L. T. Nichols, chairman; Railway Mail Pay, Sidney Bieber, chairman; Increased Cost of Car Repairs, R. B. Fowler, chairman; Storage Battery Car, C. W. Pidcock, chairman; Newlands Joint Commission, J. W. Oglesby, chairman; Insurance, W. M. Blount, chairman; Standard Stationery Forms, W. A. Gore, chairman. Among general subjects are the following: Loading dressed lumber, system of checking car detentions for which railroads are responsible; division of express earnings; statutory attorneyship at Washington; effect of Adamson eight-hour law; changes in articles of organization of the association, etc.

Master Tinners, Coppersmiths and Pipefitters Association

The annual convention of the American Railroad Master Tinners, Coppersmiths and Pipe-fitters Association for 1917 has been postponed.

MEETINGS AND CONVENTIONS

The following list gives names of secretaries, dates of next or regular meetings and places of meeting of those associations which will meet during the next three months. The full list of meetings and conventions is published only in the first issue of the Railway Age Gazette for each month.

AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—F. A. Pontious, 455 Grand Central Station, Chicago. Next meeting, July 18, 1917, Asheville, N. C.

AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, Illinois Central, Chicago, Ill. Next meeting, June, 1917, Denver.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—E. H. Harman, Room 101, Union Station. St. Louis, Mo. Annual meeting, August 8-10, Minneapolis, Minn.

AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa. Next annual meeting, June 26-29, Hotel Traymore, Atlantic City, N. J.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Chas. Warren Hunt, 220 W. 57th St., New York. Regular meetings, 1st and 3d Wednesday in month, except July and August, 220 W. 57th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York. Next convention, May 21-24, Cincinnati, Ohio.

CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk, P. O. Box 7, St. Lambert (near Montreal), Que. Regular meetings, 2d Tuesday in month, except June, July and August, Windsor Hotel, Montreal, Que.

CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 176 Mansfield St., Montreal, Que. Regular meetings, 1st Thursday in October, November, December, February, March and April. Annual meeting, January, Montreal.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 Lawlor Ave., Chicago. Regular meetings, 2d Monday in month, except June, July and August, Hotel La Salle, Chicago.

CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York. Regular meetings, 2d Friday in January, May, September and November. Annual dinner, 2d Thursday in March, Hotel Statler, Buffalo, N. Y.

CINCINNATI RAILWAY CLUB.—H. Boutet, Chief Interchange Inspector, Cin'ti Rys., 101 Carew Bldg., Cincinnati. Regular meetings, 2d Tuesday, February, May, September and November, Hotel Sinton, Cincinnati.

ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—Elmer K. Hiles, 568 Union Arcade Bldg., Pittsburgh, Pa. Regular meetings, 1st and 3rd Tuesday, Pittsburgh, Pa.

FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Traffic Manager, R. F. & P., Richmond, Va. Annual convention, June 19, Chicago, Ill.

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—A. M. Hunter, 321 Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Thursday in month, Room 1856, Transportation Bldg., Chicago.

INVESTMENT BANKERS' ASSOCIATION.—Frederick R. Fenton, 111 W. Monroe St., Chicago. Annual convention October 1-3, 1917, Baltimore, Md.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meeting, 2d Tuesday in month, except June, July, August and September, Boston.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 95 Liberty St., New York. Regular meeting, 3d Friday in month, except June, July and August, 29 W. 39th St., New York.

NIAGARA FRONTIER CAR MEN'S ASSOCIATION.—Geo. A. J. Hochgrebe, 623 Brisbane Bldg., Buffalo, N. Y. Meetings, 3d Wednesday in month, New York Telephone Bldg., Buffalo, N. Y.

PACIFIC RAILWAY CLUB.—W. S. Wollner, Assistant to Chief Engineer, Northwestern Pacific R. R., San Francisco, Cal.

PEORIA ASSOCIATION OF RAILROAD OFFICERS.—F. C. Stewart, 410 Masonic Temple Bldg., Peoria, Ill. Regular meetings, 3d Thursday in month, Jefferson Hotel, Peoria.

RAILROAD CLUB OF KANSAS CITY.—Claude Manlove, 1008 Walnut St., Kansas City, Mo. Regular meetings, 3d Saturday in month, Kansas City.

RAILWAY CLUB OF PITTSBURGH.—J. B. Anderson, Room 207, P. R. R. Sta., Pittsburgh, Pa. Regular meetings, 4th Friday in month, except June, July and August. Pittsburgh Commercial Club Rooms, Colonial-Annex Hotel, Pittsburgh.

RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Myers Bldg., Bethlehem, Pa. Next meeting, June 12-13, Hotel McAlpin, N. Y.

RICHMOND RAILROAD CLUB.—F. O. Robinson, C. & O., Richmond, Va. Regular meetings, 2d Monday in month, except June, July and August.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August, St. Louis.

SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grand Bldg., Atlanta, Ga. Regular meetings, 3d Thursday, January, March, May, July, September, November, 10 a. m., Piedmont Hotel, Atlanta.

TRAFFIC CLUB OF CHICAGO.—W. H. Wharton, La Salle Hotel, Chicago.

TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 291 Broadway, New York. Regular meetings, last Tuesday in month, except June, July and August, Waldorf-Astoria Hotel, New York.

TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Gen'l Ag't, Erie R. R., 1924 Oliver Bldg., Pittsburgh, Pa. Meetings bi-monthly, Pittsburgh.

TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7122 Stewart Ave., Chicago. Next meeting, June 19, Fresno, Cal.

TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, Superintendent's office, N. Y. C. R. R., Detroit, Mich. Meetings monthly, Normandie Hotel, Detroit.

UTAH SOCIETY OF ENGINEERS.—Frank W. Moore, 1111 Newhouse Bldg., Salt Lake City, Utah. Regular meetings, 3d Friday in month, except July and August, Salt Lake City.

WESTERN CANADA RAILWAY CLUB.—L. Kon, Immigration Agent, Grand Trunk Pacific, Winnipeg, Man. Regular meetings, 2d Monday, except June, July and August, Winnipeg.

WESTERN RAILWAY CLUB.—J. W. Taylor, 1112 Karpen Bldg., Chicago. Regular meetings, 3d Monday in month, except June, July and August, Hotel Sherman, Chicago.

Traffic News

The Southern Pacific, in its city ticket offices in the larger cities on the Pacific Coast, now has messengers to deliver tickets to buyers at their homes or offices.

The total number of ships passing through the Panama Canal during the month of March was 153. Their net tonnage was 470,129, and the total cargo carried was 571,819 long tons.

The railways of Canada have filed with the railway commissioners, and also with the Interstate Commerce Commission, notices of their intention to make a general advance of 15 per cent in freight rates to points in the United States.

The St. Louis Southwestern is carrying on its campaign of instruction for farmers more extensively than ever. A special train carrying lecturers from the agricultural department of the state has a chicken car for the instruction of farmers' wives and children, and a dairying car, equipped not only with scientific machinery but also some home made apparatus. The best farm implements of all kinds are shown.

The Baltimore & Ohio announced last Monday an embargo on all kinds of freight, in less than carloads, destined to Baltimore. At the end of last week about 10,000 tons of parcel freight was waiting to be delivered, and after consultation with officers of the city the freight houses were opened on Sunday, with a view of relieving the congestion, but only a very few consignees called for their freight on that day. The congestion was not relieved and the embargo became necessary.

The Public Utility Commissioners of New Jersey have reviewed the action of the Erie Railroad in discontinuing the operation of 77 passenger trains and have found no fault with the arrangement except to disapprove the annulment of two or three trains. The commissioners say that if they can be advised of such moves as this, with an explanation of the reasons, set forth in some detail, they can explain matters to the public without requiring the officers of the railroad to appear at hearings before the commission.

The Akron Traffic Association was recently organized at Akron, Ohio, to bring about a closer relationship between shippers and railroads in that city. The officers of the new association are as follows: President, E. L. Tragesser, traffic manager of the B. F. Goodrich Company; secretary-treasurer, T. E. Barry, manager of the Pittsburgh Coal Company; vice-president, W. W. Wagoner, traffic manager of the W. E. Wright Company; chairman of the board of directors, Alvin Hill, traffic manager of the Robinson Clay Products Company.

Wilbur La Roe, Jr., examiner for the Interstate Commerce Commission, who conducted protracted hearings recently in New York, has made a report of his findings in the complaint of Jersey City, relative to freight rates from the west to New York and Jersey City, and the report has been published by the commission. Mr. La Roe's conclusions are favorable to New York, and he recommends the dismissal of the New Jersey complaint. The commission has not yet approved the report or made its final findings, and the parties to the proceedings are allowed 20 days in which to file objections to Mr. La Roe's conclusions.

C. H. Markham, president of the Illinois Central, has issued a bulletin to employees giving a brief resume of car performance from May, 1913, to May, 1917. Until the seven months' period beginning with May, 1913, the Illinois Central record for car performance had never equaled 30 miles a day in any two consecutive months, and not until September, 1915, was an average of 31 miles a day made. Since that time there has been a steady improvement, and in the month of April, 1917, the high record of 40 miles a day was reached. This success is attributed to the hearty co-operation of every one on the road having to do with the handling of cars—at stations, in trains, in yards and on repair tracks.

The recommendation of the executive committee of the National Industrial Traffic League with reference to the

proposed 15 per cent advance in freight rates was approved by the membership of the league by a vote of seven to one. The recommendation, which was previously printed in the *Railway Age Gazette,* was to the effect that the Interstate Commerce Commission should grant such temporary increases in rates as prompt investigation by that body might disclose as necessary, but that an increase in interstate rates without a corresponding general increase in intrastate rates would place an undue burden on interstate commerce as well as cause unjust discrimination against parts of the country paying increased rates.

A hearing on proposed rules governing the distribution of cars in times of shortage was held before the Nebraska State Railway Commission at Lincoln, Neb., on May 11. Most of the opposition to the commission's rules centered on the proposal to take as a basis of distribution of cars to shippers at each station a five-year average of cars used during the same months by respective shippers. J. W. Shorthill, representing grain elevator and live stock interests, favored using an average of all cars furnished for four full calendar years preceding the period of car shortage. S. M. Braden, general superintendent of the Chicago & North Western at Norfolk, Neb., testified that there is no shortage of cars on his line at the present time, although there had been a severe shortage at times in the period between August, 1916, and April, 1917. He said that his road now had a surplus of cars and would continue to have until the next wheat harvest begins moving to market. Several Union Pacific officers declared that the shortage of cars on that road had ended about April 1, and that a surplus of box and stock cars is now accumulating in the yards at Denver, Colo.; Sidney, Neb., and North Platte.

New Intrastate Demurrage Rates

The State Public Utilities Commission of Illinois, the Public Service Commission of Indiana, the Idaho Public Utilities Commission, and the Tennessee Railroad Commission have adopted the demurrage rates recently put into effect by the Interstate Commerce Commission. The Railroad Commission of Wisconsin has tentatively adopted the I. C. C. rules, and hearings are pending on the same tariff in Arkansas, Louisiana and Wyoming. The State Corporation Commission of New Mexico on May 1 extended for one year the effectiveness of the rules previously in force. These rules provide for a charge of $3 per car per day after the expiration of 48 hours free time. The Missouri Public Service Commission has extended until June 1 the increased demurrage rates, which were put in effect during the winter, and this week has held a formal hearing on the I. C. C. rules.

Illinois Passenger-Rate Tangle

The railroads of Illinois in their efforts to satisfy both the Interstate Commerce Commission and the State Public Utilities Commission are between the upper and nether millstones. In December the carriers filed tariffs in compliance with the orders of the Interstate Commerce Commission in the case of the Business Men's League of St. Louis vs. the Atchison, Topeka & Santa Fe et al., which were suspended by the Public Utilities Commission. The application of the railroads for an injunction to prevent the state authorities from interfering with the operation of the new tariffs was denied in the federal district court at Chicago by Judge Kenesaw M. Landis. The case was appealed to the Supreme Court of the United States, which denied the application for a temporary injunction, and is now considering the application for a permanent injunction. The Interstate Commerce Commission recently obtained an injunction in the federal district court of St. Louis before Judge William C. Hook, requiring the railroads to comply with the orders of the federal commission for the removal of discrimination of intrastate against interstate traffic between Illinois points and St. Louis, Mo., and Keokuk, Iowa. The court, however, denied the cross bill of the railroads asking for an injunction against the Illinois state authorities to prevent their interference with the tariffs filed in pursuance of the orders of the federal commission. Subsequently the carriers sent to Washington a petition asking that all parties involved in the Business Men's League case be required to show that the tariffs filed by the railroads are not in compliance with the orders of the federal commission; but this was denied on May 12. On May 11, the Illinois commission held a hearing on the tariffs—which it had suspended in December—and refused to consider rulings of the Interstate Commerce Commission which were submitted by the carriers as evidence. An order by the state commission permanently suspending the tariffs was issued May 15. The railroads face the situation of being forced to comply with the orders of the federal commission before May 31, and at the same time laying themselves open to prosecution by the state commission, the state attorney general and every state's attorney in Illinois.

Hearing on Reconsignment at Chicago

A hearing on the new reconsignment tariffs, suspended by the Interstate Commerce Commission, which was begun at Chicago on May 7, before C. V. Burnside, attorney examiner, was continued into the present week. The hearing so far has been devoted largely to testimony by the carriers in justification of the proposed tariffs. Among those appearing to show the cost of reconsignment and diversion service were H. Wilson, assistant general freight agent of the Erie, New York, N. Y.; Francis La Bau, freight traffic manager of the New York Central, New York, N. Y.; E. P. Bates, assistant freight traffic manager of the Pennsylvania Railroad, Philadelphia, Pa.; C. E. Hildum, auditor of freight accounts of the Erie, New York, N. Y., and D. B. Fleming, superintendent of the Buffalo division of the New York Central, Buffalo, N. Y. H. C. Clevenger, coal freight agent of the Pennsylvania Railroad, Philadelphia, Pa., showed the extent of the use of reconsignment in coal traffic and the delay to equipment incurred thereby. W. G. Louder, assistant trainmaster of the Pennsylvania Railroad, Altoona, Pa., gave a detailed description of the operating steps incidental to reconsignment, and pointed out the delay to traffic due to the performance of that service. The testimony of the railroads was interrupted to enable certain grain dealers from Boston and Philadelphia to present testimony against the proposed tariffs, and return to their homes on account of urgent business.

J. A. B. Morrow, commissioner of the Pittsburgh Coal Producers' Association, and H. P. McCue, traffic manager of the Pittsburgh Coal Company, testified in favor of the proposed charges on the grounds that they would increase the available supply of coal equipment by eliminating unwarranted delay to cars. The tariffs, in their view, would tend to reduce speculation in coal by brokers who deal in free coal, which they make a practice of holding for higher prices.

J. F. Porterfield, general superintendent of transportation of the Illinois Central, offered testimony for the carriers showing how reconsignments slow up operation and the cost to the railroad of performing the service. Mr. Barth, vice-president of the Hines Lumber Company, Chicago, Ill.; Mr. Perrine, president of Johnson Brothers, Brooklyn, N. Y., and representing the New York Lumber Trade Association; Mr. Ellis, general manager and secretary of Conkling Brothers, Bernardville, N. Y., and representing the Eastern States Lumber Dealers' Association, and E. E. Ebert, traffic manager of the Traxler Lumber Company, Newark, N. J., testified in favor of the new tariffs on the ground that the holding of cars for reconsignment is not necessary to the legitimate lumber trade, and is extensively practiced only by brokers, who, in effect, use railroad equipment as storehouses.

In the lumber trade the large dealers seem to be generally in favor of the new tariffs, and the small dealers who depend to a large extent upon the transit car for their supply of lumber oppose them. The smaller wholesalers declare that their larger competitors have taken advantage of this opportunity to force them out of business, and that if the tariffs go into effect the result will be a smaller aggregate supply of lumber and higher prices for the consumer. The transit car business makes it possible for smaller lumber mills to cut miscellaneous sizes of timber on cut-over tracts, and to forward their products to wholesale centers for distribution according to the immediate needs of the consuming public. It is argued that the proposed tariff would make operation by the small lumber mills unprofitable, thereby resulting in a great waste of timber on cut-over lands.

Commission and Court News

INTERSTATE COMMERCE COMMISSION

Lumber to Iowa Points

Opinion by Commissioner Meyer:

Proposed increased rates on lumber and articles taking the same rates from St. Louis, Mo., and grouped points to territory in Missouri and Iowa intermediate to Kansas City, Mo., and Council Bluffs, Iowa, are found justified.

Proposed increased rates on lumber and articles taking lumber rates from Cairo, Ill.; St. Louis, Mo., and grouped points to points in southeastern Iowa, are not found justified. (44 I. C. C., 401.)

Switching Charges on Grain at Milwaukee

Chamber of Commerce of the City of Milwaukee v. Chicago, Milwaukee & St. Paul. Opinion by Commissioner McChord:

Defendant's practice of absorbing switching charges at Milwaukee, Wis., on grain accorded transit at interior Wisconsin points and forwarded east via Milwaukee and lake-and-rail lines, while refusing to absorb such switching on like traffic accorded transit at Milwaukee, is found to subject millers at Milwaukee to undue prejudice and disadvantage. (43 I. C. C., 725.)

Packing House Products from Houston, Tex., to Points in Oklahoma

Chamber of Commerce, Houston, Tex., v. Atchison, Topeka & Santa Fe. Opinion by Commissioner Harlan:

On complaint that rates on packing-house products and lard substitutes in carloads to points in Oklahoma from Houston, Tex., are unreasonable and unjustly discriminatory, the commission holds that the present rates to Oklahoma points from Houston are discriminatory to the extent that they exceed the distance scale basis of rates approved in Investigation of Alleged Unreasonable Rates on Meats, 22 I. C. C., 161, 174. Relief from fourth section departures is granted at intermediate points on indirect lines. (44 I. C. C., 349.)

Switching Cars of Coal to the Akron, Canton & Youngstown

Akron, Canton & Youngstown v. Baltimore & Ohio. Opinion by Commissioner Hall:

A charge of 10 cents per 2,000 lb., minimum $3 per car, imposed by defendant for switching cars loaded with coal from complainant's point of connection with the Cleveland division of defendant at Akron, Ohio, to private sidings and industries located on that division of defendant within the switching limits of Akron, while contemporaneously maintaining a charge of $2.50 per car for switching cars loaded with coal from points of connection with the Erie and the Pennsylvania Company to said private sidings and industries, is found to be unduly prejudicial. A similar allegation in respect of shipments to points on defendant's New Castle division is not sustained. (44 I. C. C., 305.)

Cement from Troy, N. Y.

Atlas Portland Cement Company v. Boston & Maine. Opinion by Commissioner Clements:

Troy, N. Y., is virtually a part of the Hudson cement district. The commission in this case holds that the reasonableness per se of cement rates from Troy to points on defendant's line in New England cannot be determined solely upon comparisons with the rates on comparable commodities. Before this issue is finally passed upon the reasonableness per se of the rates from the whole Hudson district should be determined. An order will be entered instituting an investigation into the reasonableness of those rates, and the present proceeding will be consolidated with the investigation and with Docket No. 9,544, Allentown Portland Cement Co. v. B. & O. R. R. Co., for joint disposition. Fourth section applications denied. (44 I. C. C., 416.)

Restrictions of a Trackage Agreement

Hocking Domestic Coal Company v. Kanawha & Michigan. Opinion by Commissioner Harlan:

The defendant, in order to connect two separated parts of its line, uses a portion of the rails of another carrier, subject to a condition in the trackage agreement that excludes the defendant from serving industries on private side-tracks connected with the leased line. Upon complaint of the operator of a coal mine on such a sidetrack, demanding service at its mine, it is held that the defendant, under the restraint of the contract, may lawfully decline to serve it. Complaint dismissed. (44 I. C. C., 392.)

Time on Safety Appliance Act Extended to April 1, 1918

By orders entered March 13, 1911, and November 2, 1915, the commission exercising the authority conferred upon it by the provisions of an act to supplement the safety appliance acts, approved April 14, 1910, as amended March 4, 1911, extended to July 1, 1917, the period within which common carriers subject to said act shall make their freight cars actually in service on July 1, 1911, conform to certain of the standards of equipment prescribed by the commission pursuant to the provisions and requirements of section 3 of said act. Upon application by a number of the carriers the commission has further extended the period of time eight months from July 1, 1917.

The petitioning lines, representing a large percentage of the total railway mileage of the United States, showed that on January 1, 1917, there were 296,033 cars, which did not fully conform to the prescribed standards with respect to uniform location of the various appliances required by the safety appliance acts. It is urged that because of practical difficulties confronting the carriers at the present time, such as shortage of cars and labor, the inability to obtain new equipment, and congested traffic conditions, a further extension of time within which to make the required changes in their equipment is warranted, and that the period of extension should be sufficient to enable each carrier to make the required changes in its own cars in the usual course of interchange.

The commission notes in its decision that it does not appear that the changes required in the cars which have not yet been made to conform to the standards of equipment are of such a nature as to necessitate any prolonged withdrawal from transportation, and we see no good reason why, with proper co-operation on the part of the carriers, some system can not be devised by which the required changes can be made by foreign roads, if necessary, and the owning carrier properly billed for the expense, in much the same manner as in the case of ordinary running repairs. (44 I. C. C., 303.)

Rates from St. Louis to Illinois Points

Business Men's League of St. Louis v. Atchison, Topeka & Santa Fe. Opinion by Commissioner Daniels:

Present commodity rates, with certain exceptions, between St. Louis, Mo., and Keokuk, Iowa, and points in Illinois found just and reasonable in so far as they do not exceed class rates.

Present commodity rates between St. Louis and Illinois points are found prejudicial to St. Louis and preferential of East St. Louis to the extent that they exceed the commodity rates over the same routes between East St. Louis and the same Illinois points, where these Illinois points are 100 miles or more from St. Louis; and, where the Illinois points are less than 100 miles from St. Louis, prejudicial to St. Louis and preferential of East St. Louis to the extent that they exceed the commodity rates over the same routes between East St. Louis and the same Illinois points by more than the differences which existed prior to October 26, 1914. The same kind of undue prejudice found in respect to Keokuk, Iowa, and points in Illinois directly opposite.

Commodity rates between St. Louis and points in Illinois are found prejudicial to St. Louis and preferential of Chicago to the extent that the St. Louis rates are on a higher basis than the Chicago rates to the same Illinois points. The same kind of undue prejudice found in respect to Keokuk and preference in favor of Chicago.

The maintenance of commodity rates between points in Illinois, which, in combination with other commodity rates required or permitted by the report, will produce the undue prejudice to interstate commerce and undue preference of intrastate com-

merce within Illinois condemned by the report is found unlawful.

Commodity rates between points in Illinois 100 miles or more apart, where on a basis lower than the basis of the commodity rates between St. Louis and Illinois points for corresponding distances, are to that extent a burden on interstate commerce and preferential of intrastate commerce.

The original report in this case dealt with passenger fares. This report deals only with commodity rates. Class rates are still under consideration. (44 I. C. C., 308.)

PERSONNEL OF COMMISSIONS

Thomas E. Dempcy, announcement of whose appointment as chairman of the Illinois State Public Utilities Commission, succeeding William L. O'Connell, resigned, was made in these columns last week, was born in Urbana, Ohio, in November, 1858. After leaving high school he taught country and village schools during the winter, and studied law during vacations and at night. In 1884 he entered the senior class of the Cincinnati Law School, Cincinnati, Ohio, from which institution he graduated, and was admitted to the Ohio State bar in 1885. For the next 10 years he practiced law in Kansas, and then went to East St. Louis, Ill. In 1905 he was appointed assistant to the attorney general of the state, being later promoted to first assistant attorney to the attorney general, which position he held for seven years, being reappointed under several administrations. He now becomes, subject to the confirmation of the state senate, chairman of the public utilities commission, with headquarters at Springfield, Ill.

COURT NEWS

Use of Streets for Tracks

The Michigan Supreme Court holds that where a city granted a franchise to a railroad to lay tracks along a street within a certain period (three years), and the tracks were completed only a part of the required distance during such period, the railroad could, nevertheless, maintain the tracks already completed without intereference, though it could not proceed to construct the remainder.—Muskegon, Grand Rapids & Indiana v. Muskegon Heights (Mich.), 162 N. W., 92. Decided March 29, 1917.

Right of Way—Where No Designation of Width

The Pennsylvania Supreme Court holds that where a deed to a railroad company conveys "the full and perfect right of way through and over said lots or lands" for railroad purposes, but does not specify the width of the right of way, the railroad has the right to appropriate land of such width as the board of directors, in the exercise of their honest judgment, deem necessary for the future as well as for the then existing railroad purposes. —Rodgers v. Pittsburgh, Ft. W. & C. (Pa.), 100 Atl., 271. Decided January 8, 1917.

Injuries Not Within Course of Employment

A local freight clerk was sent to inspect the books at another station. While on his way the train he was on ran over and injured a man. He got off the train to assist the man, and while afterwards attempting to board the moving train was run over and killed. The California Supreme Court held, in an action for his death under the Workmen's Compensation Act, that he had departed from the course of his employment at the time, and on the principle that an employee, when in the performance of his duty, may not impose on his employer any greater risk or responsibility than that inherent in the character of the duty itself, there could be no recovery.—Northwestern Pacific v. Industrial Accident Commission (Cal.), 163 Pac., 1000. Decided February 26, 1917.

Damages Under Federal Employers' Liability Act

The Circuit Court of Appeals, Third Circuit, holds that in cases brought under the employers' liability act the only right of recovery is that conferred by the statute, and the damages named are only such as are named by its terms. The United States Supreme Court has repeatedly held that in actions under this act the measure of damages is the pecuniary loss resulting from death and sustained by the designated beneficiaries. Therefore, the widow and children of a deceased brakeman cannot recover the funeral expenses, since those are charges not against the beneficiaries, but against the estate, which has a right of action to recover such loss.—Philadelphia & Reading, 239 Fed. 1. Decided January 22, 1917.

Exceptions from Hours of Service Act

A wreck was caused by the breaking of a car wheel, derailing three cars of a freight train. The conductor, a man of experience, thought the track could be cleared in an hour and so informed the train despatcher at Cleveland, and the despatcher permitted another freight train (7460) to leave the terminal. It took 3½ hours to clear the track and No. 7460 was thereby delayed so that its crew were more than 16 hours on duty. The government sued for the statutory penalties. The Federal District Court for western Pennsylvania held that the act did not apply.

In the proviso excepting from the operation of the act any case of casualty or unavoidable accident or act of God, or where the delay was the result of a cause not known to the carrier or its officers when the trainman started out, and which could not have been foreseen, the court holds that none of these terms are synonymous. "Casualty" means a fortuitous happening caused by some human agency which the carrier could not control. "Unavoidable accident" means a fortuitous happening caused by some human agency over which the carrier may have some control, yet which could not have been prevented by the exercise of due care. "Act of God" is an accident not occasioned by human agency, but by physical causes alone. In the fourth exception it is the cause, and not the delay, which could not have been foreseen, and this last exception should not be construed to include the others. That would require the immediate suspension of all traffic in the affected division on learning of a wreck. The railroad was therefore held not liable for the penalties.—United States v. Pennsylvania, 239 Fed., 761. Decided February 9, 1917.

Missouri Stop, Look and Listen Rule—Warning Signals

In an action for personal injuries from collision with a passenger train while attempting to cross a railroad at a grade crossing in an automobile, the Springfield Court of Appeals, Missouri, stated the stop, look and listen rule as followed in that state as follows: Looking and listening are so easily and readily accomplished that a failure to do so in entering upon a place of danger, such as a railroad track, is negligence, even when the absence of signals indicates a safe crossing. But stopping is not held essential unless both seeing and hearing are ineffectual without so doing. In Kelly v. Chicago & Alton, 88 Mo., 534, 547, the court said: "We think it [the law] does require of him, when he cannot see the track, to listen, and, if necessary for that purpose, on account of the noise made by his wagon (or any other cause), to stop and listen for the train before venturing blindly upon it." In Underwood v. St. L. I. M. & So., 190 Mo., App. 407, 417, the court reviewed the authorities and announced the rule that: "It is always a person's duty to look and listen when possible before entering on a railroad crossing. When stopping is essential to make looking and listening effectual, then stopping is necessary." In the present case there was some evidence that the usual warning signals were not given. On this point the court said: The law accords with common experience and reason that persons approaching a railroad crossing when the view is obstructed depend on the sense of hearing to inform them of approaching trains, and this hearing includes the hearing of such warning signals as law or custom, or both, require. And in such a case, when a person is regulating his speed and conduct so as to make hearing effectual and listens attentively and hears no train, because of the railroad's fault in not giving the required signals, then he may proceed at an ordinarily safe speed on the theory that the crossing is safe; and where the evidence tends to show that he did this, the court cannot declare him guilty of contributory negligence. Judgment for the defendant was reversed and the cause remanded for a new trial.—Swigart v. Lusk (Mo.), 192 S. W., 138. Decided February 14, 1917.

Railway Officers

Executive, Financial, Legal and Accounting

Alfred P. Thom has resigned as general counsel of the Southern Railway at Washington, D. C., and will hereafter devote his entire time to service as general counsel of the Railway Executives' Advisory Committee.

The headquarters of C. S. Sims, vice-president of the Delaware & Hudson, will be transferred from Albany, N. Y., to Montreal, Que., and F. P. Gutelius, now general manager of the Canadian Government Railways, will go to the Delaware & Hudson. Effective June 1.

Frank B. Townsend, traffic manager of the Minneapolis & St. Louis, with office at Minneapolis, Minn., has been elected vice-president in charge of traffic. He was born at Kirbyville, Mo., on October 22, 1875. In February, 1892, he entered railway service with the Iowa Central, where for 10 years he was in the accounting and traffic departments. From 1904 to 1906, he was traveling freight agent of the Minneapolis & St. Louis and the Iowa Central jointly, with office at Indianapolis, Ind., and from 1906 to 1909 he was commercial agent. On January 1, 1909, he was appointed general agent, with office at Chicago, Ill., and on January 1, 1910, was appointed coal agent of the same roads, together with the Chicago & Alton and the Toledo, St. Louis & Western. He was appointed assistant general freight agent of the Minneapolis & St. Louis on January 1, 1911, and in August, 1914, was promoted to traffic manager, with office at Minneapolis, Minn. As vice-president in charge of traffic, he will continue to have headquarters at Minneapolis.

George Fries Tucker, who has been appointed controller of the Gulf & Ship Island, with headquarters at Gulfport, Miss., as has already been announced in these columns was born at Cincinnati, Ohio, and was educated in the public and high schools. He began railway work in 1885, in the local freight office at Cincinnati of the Cleveland, Cincinnati, Chicago & St. Louis, and in 1887 became a clerk in the auditor's office of the East Tennessee, Virginia & Georgia, now a part of the Southern Railway. In 1896, he went to the Ohio Southern, now a part of the Detroit, Toledo & Ironton, as bookkeeper in the auditor's office. Three years later he became a construction accountant on the Union Pacific, at Laramie, Wyo., and the following year went to the Denver & Rio Grande as a clerk in the auditor's office at Denver, Colo. From 1902 to 1911 he was in the service of the Chicago, Rock Island & Pacific, consecutively, as bookkeeper, chief clerk and special accountant to controller at Chicago. In 1911 he went to the Gulf & Ship Island as auditor at Gulfport, Miss., which position he held at the time of his recent appointment as controller of the same road, with headquarters at Gulfport, as above noted.

Macy Nicholson has been appointed assistant to the vice-president of the Great Northern, with office at St. Paul, Minn., as announced in these columns two weeks ago. He was born at Hagerstown, Ind., on October 20, 1874, and on May 1, 1891, entered railway service with the Milwaukee, Lake Shore & Western, now a part of the Chicago & North Western as a clerk in the superintendent's office. In June, 1896, he was employed by the United States Steel Company as a clerk in the mine offices, and in June, 1898, went to the Great Northern as a clerk in the president's office, being appointed chief clerk to the president the following year. From February, 1903, to May, 1905, he was an assistant division superintendent, and from May, 1905, to July, 1913, served as division superintendent at various points along the line. In July, 1913, he was appointed assistant general superintendent, Montana district, and on July 1, 1916, was assigned to special work on the general manager's staff at St. Paul, continuing that work until his appointment as assistant to the vice-president, as noted above. He has also been appointed a member of the Car Service Commission of the Committee on National Defense of the American Railway Association, at Washington, D. C.

Operating

A. Q. Oliver has been appointed car accountant of the San Antonio, Uvalde & Gulf, with headquarters at North Pleasanton, Texas.

James McDowell has been appointed superintendent of station service of the New York, New Haven & Hartford, with temporary headquarters at Boston, Mass.

A. L. Clapp, roadmaster of the Chicago & North Western terminal division at Chicago, Ill., has been appointed trainmaster of the Galena division, with the same headquarters.

F. J. Otterson, assistant trainmaster of the Boston & Albany, has been appointed trainmaster, with offices at Boston, Mass., vice D S. Brigham, promoted. F. F. Williams, chief despatcher, succeeds Mr. Otterson, and E. C. Thorpe succeeded Mr. Williams.

R. E. Davis has been appointed superintendent in charge of transportation and solicitation, with jurisdiction extending over the mechanical and roadway departments of the Valdosta, Moultrie & Western, with office at Valdosta, Ga. The office of superintendent of transportation has been abolished.

Harrison M. Mills, whose appointment as superintendent of Marion terminal of the Erie, with headquarters at Marion, Ohio, has already been announced in these columns, was born in Waukesha county, Wisconsin, and was educated in the common schools. At the age of 19 he began railway work with the Chicago, Milwaukee & St. Paul as a brakeman. A few months later he was promoted to freight conductor and subsequently served for five years as conductor on work trains, and later as passenger conductor between Milwaukee, Wis., and La Crosse. He resigned from the latter position in May, 1914, to enter the service of the Erie, and on May 1, was appointed superintendent of Marion terminal, of the same road, as above noted.

H. M. Mills

Louis S. Emery, whose appointment as superintendent of the St. Lawrence division of the New York Central with headquarters at Watertown, N. Y., has already been announced in these columns, was born on December 30, 1877, at Adrian, Mich., and was educated in the public schools. He began railway work in September, 1898, with the Lake Shore & Michigan Southern, serving for one year as yard clerk and then for about three years in the ticket office at Toledo, Ohio. From 1902 to 1903 he served in the emergency department at the Grand Central Terminal, New York City, and then was appointed superintendent of the Marcellus & Otisco Line at Marcellus. In January, 1905, he was appointed yardmaster of the New York Central at Auburn, N. Y., and the following September was made assistant trainmaster at Lyons. He subsequently served as trainmaster at Rochester and later as assistant superintendent at Lyons and as superintendent at Oswego.

Lyttleton F. Wilson, announcement of whose appointment as superintendent of transportation of the Denver & Rio Grande with office at Denver, Colo., has already been announced in these columns, was born in Trigg County, Ky., April 30, 1883. He completed his education at Bethel College, Russellville, Ky., and then entered railway service in 1901 as a clerk in the general freight department and was later transferred in this same capacity to the despatcher's office and then the superintendent's office. From March, 1903, to August, 1904, he was a stenographer for the Terminal Railway Association of St. Louis and from October, 1904, to March, 1905, he was report clerk on construction for the San Pedro, Los Angeles & Salt Lake. In March, 1905, he was

appointed secretary to the general manager of the Mexican International, and from June, 1907, to October, 1908, he was secretary to the assistant general manager of the Denver & Rio Grande, being promoted to car distributor for this same company on the latter date. In February, 1911, he was advanced to car accountant and two years later was appointed chief clerk to the assistant general manager and the general manager, which position he continued to fill up to the time of his present appointment, as noted above. He succeeds F. E. Clarity, promoted.

Frank E. Clarity, announcement of whose appointment as assistant general manager of the Denver & Rio Grande, with office at Salt Lake City, Utah, was noted in these columns two weeks ago, was born at Sauk Centre, Minn., September 10, 1877. He entered railway service in September, 1894, as a car checker with the Great Northern at Superior, Wis., and later held various positions in the local freight office of this road at Superior and Duluth, Minn. From 1902 to 1904 he was car distributor for the Lake district of the same road, and from November, 1904, to August, 1907, he was consecutively assistant chief clerk and chief clerk to the general superintendent of transportation, with headquarters at St. Paul, Minn. In August, 1907, he was appointed traveling car agent, and in April, 1911, was made chief clerk to the general superintendent of the Western district, with office at Seattle, Wash., later being transferred to Spokane, Wash., with the same title. In March, 1912, he was appointed inspector of transportation on the Denver & Rio Grande, and in January, 1913, was promoted to superintendent of transportation, which position he held at the time of the appointment, noted above.

F. E. Clarity

Traffic

H. B. Harrell has been appointed commercial agent of the Valdosta, Moultrie & Western, reporting to the superintendent, with office at Valdosta, Ga.

H. D. Landry, commercial agent of the St. Louis Southwestern at St. Louis, Mo., has been appointed assistant general freight agent, with the same headquarters, succeeding J. E. Allen, promoted.

John C. Clair, general development agent of the Illinois Central, with office at Chicago, Ill., has resigned to enter the investment business at Boston, Mass. A sketch and photograph of Mr. Clair appeared in these columns March 23, 1917, at the time of his promotion from industrial and immigration commissioner to general development agent.

Granville S. Trowbridge, chief clerk in the general freight department of the St. Louis Southwestern at St. Louis, Mo., has been appointed assistant general freight agent, with the same headquarters. He was born at Galveston, Tex., on November 22, 1878, and in May, 1900, entered railway service as a stenographer in the office of the superintendent of transportation of the St. Louis Southwestern at Tyler, Tex. In August, 1901, he was transferred as stenographer to the traffic department at St. Louis. From May 1, 1905, to December 1, 1908, he was rate clerk and tariff clerk, and from December, 1908, to October, 1913, chief rate clerk. He was appointed chief clerk in the freight traffic department on November 1, 1913, which position he continued to hold until appointed assistant general freight agent.

J. C. Millspaugh, whose appointment as assistant general passenger agent of the Pennsylvania Lines West of Pittsburgh, with office at Indianapolis, Ind., was announced in these columns several weeks ago, entered railway service on April 1, 1880, with the Illinois Midland as a messenger in the office of the superintendent at Decatur, Ill. On May 1, 1882, he was made a clerk in the auditor's office and on August 20, 1885, was appointed operator and clerk in the local freight office at Peoria, Ill. From January 21, 1887, to May 18, 1887, he was an operator and clerk for the Terre Haute & Peoria in the local freight office at Peoria, and from May 19, 1887, to June 30, 1892, he was chief clerk and traveling auditor for this same company, with headquarters at Decatur. On July 1, 1892, he was appointed car accountant, but resigned on November 1, 1892, to become auditor and cashier of the St. Joseph & Lake Michigan Transportation Company at St. Joseph, Mich. On April 1, 1893, he was appointed division passenger agent of the Vandalia at Decatur, and on October 1, 1894, was made traveling passenger agent of the Peoria and St. Louis divisions, with the same headquarters. On September 1, 1901, he was appointed traveling passenger agent for the Vandalia system, with office at Terre Haute, Ind., and on May 1, 1902, was made chief clerk in the office of the general passenger agent at St. Louis, Mo. He was advanced to assistant to the general passenger agent on November 1, 1905, which position he continued to hold until the time of his appointment noted above. He succeeds F. A. Bauchens, transferred.

Arthur Richard Atkinson, announcement of whose appointment as assistant general freight and passenger agent of the Southern Pacific, with office at San Antonio, Tex., was made in these columns recently, was born in County Kildare, Ireland, April 11, 1868. He completed his education at the Royal University of Ireland in 1889, and then entered railway service as a clerk in the Irish Railway Clearing House. In 1891 he came to the United States and secured employment with the St. Louis-Southwestern as a clerk in the office of the resident engineer at Texarkana, Tex. Later in the same year he went to the Houston & Texas Central as a clerk in the claim department, and in May, 1892, was made a stenographer in the general freight office of the Gulf, Colorado & Santa Fe at Galveston, returning to the general freight department of the Houston & Texas Central the following October. From October, 1894, to June, 1897, he was secretary to the traffic manager of the Southern Pacific, Texas Lines, at Houston, being then appointed traveling freight agent at Dallas, and later division freight and passenger agent at Corsicana, Beaumont and San Antonio in turn. He now becomes assistant general freight and passenger agent at San Antonio, as noted above. He has also lately been appointed captain in the Quartermaster's Officers' Reserve Corps.

A. R. Atkinson

Engineering and Rolling Stock

C. F. Winn, master mechanic of the Chicago, Milwaukee & St. Paul, with headquarters at Milwaukee, Wis., has resigned.

W. T. Abington has been appointed superintendent of shops of the Denver & Rio Grande, with office at Salt Lake City, Utah, vice E. J. Harris, promoted.

T. Hambly has been appointed acting master mechanic of the Canadian Pacific Algoma district, with headquarters at North Bay, Ont., vice J. H. Mills, resigned.

A. N. Lucas, general foreman of the locomotive department of the Chicago, Milwaukee & St. Paul at Milwaukee, Wis., has been appointed assistant superintendent of motive power with headquarters at Milwaukee.

Ben Johnson, locomotive superintendent of the United Railways of Havana, the Havana Central and the Western Railways of Havana at Cienaga, Havana, Cuba, has resigned, effective May 1. Mr. Johnson is retiring from active business life.

J. L. Earle, bridge and building supervisor of the Chattanooga division of the Nashville, Chattanooga & St. Louis, at Tallahoma, Tenn., has been appointed division engineer, with office at Nashville, to succeed R. M. Milam, who is now serving in the National Guard.

Thomas C. Donaldson has been appointed master mechanic of the Rochester & Buffalo division of the Buffalo, Rochester & Pittsburgh, with headquarters at Salamanca, N. Y., and William E. O'Brien has been promoted to assistant road foreman of engines, with headquarters at Rochester, N. Y.

E. J. Brennan, shop superintendent of the Baltimore & Ohio at Glenwood, Pittsburgh, Pa., has been promoted to general master mechanic with headquarters at Pittsburgh, succeeding G. A. Schmoll, who has been granted leave of absence on account of ill health. R. B. Stout, master mechanic at Cumberland, Md., succeeds Mr. Brennan. F. P. Pfahler, master mechanic at Glenwood, has been appointed master mechanic at Cumberland, and A. L. Brown succeeds Mr. Pfahler.

Galen B. Owen, who has been appointed superintendent of maintenance of the Erie, with headquarters at New York, as has already been announced in these columns, was born on July 31, 1860, and was educated at Towanda, Pa., high school and institute. He began railway work in 1880, and served as rodman on the Lehigh Valley until August, 1881; then to April, 1889, as assistant engineer. From April, 1889, to August, 1896, he served as roadmaster and engineer of construction on the same road, and then to April, 1899, was division engineer maintenance of way, on the Baltimore & Ohio. In April, 1899, he was appointed superintendent maintenance of way on the same road at Baltimore, Md., and from July, 1902, to April of the following year was engineer maintenance of way of the West Virginia Central & Pittsburgh, now a part of the Western Maryland. On April 15, 1903, he was appointed assistant to the general manager of the Erie. In May, 1907, he was appointed engineer maintenance of way on the same road; in 1913 he was granted leave of absence, and subsequently left railway service. He returned to the service of the Erie in December, 1916, as assistant to vice-president, and now becomes superintendent of maintenance of the same road, with headquarters at New York, as above noted.

G. B. Owen

E. L. Markham, assistant engineer of the St. Louis Southwestern at Pine Bluff, Ark., has been appointed division engineer of the Northern division of the St. Louis Southwestern Lines, with headquarters at Pine Bluff, Ark. T. J. Williams, Jr., has been appointed division engineer of the Middle division, with headquarters at Mt. Pleasant, Texas, and A. W. Foscue, assistant engineer of the St. Louis Southwestern of Texas, at Tyler, has been appointed division engineer of the Southern division of the St. Louis Southwestern Lines, with headquarters at Tyler.

Purchasing

William S. Morehead has been appointed assistant general storekeeper of the Illinois Central, with office at Chicago, Ill., succeeding William Davidson, promoted. He will have jurisdiction over the northern lines. Leonard L. King has been appointed division storekeeper at McComb, Miss., succeeding W. S. Morehead. George W. Rice has been appointed division storekeeper at Memphis, Tenn., succeeding L. L. King. John G. Warnecke has been appointed division storekeeper at Centralia, Ill., succeeding G. W. Rice.

Railway Officers in Military Service

Whitney J. Rider, assistant engineer of the Ft. Smith & Western, Ft. Smith, Ark., has been granted a leave of absence for the purpose of entering the officers' training camp at Fort Logan H. Root, Little Rock, Ark.

M. S. Stevens, assistant engineer maintenance of way of the Toledo, Peoria & Western, with headquarters at Peoria, Ill., left railway service on May 10 to enter the officers' training camp, infantry division, at Fort Sheridan, Ill.

E. A. Froyd, engineer maintenance of way of the Chicago, Peoria & St. Louis, Springfield, Ill., received a commission as captain of infantry on April 16, and was ordered to service at Fort Benjamin Harrison, Ind., on May 8.

R. M. Milam, division engineer of the Nashville, Chattanooga & St. Louis, at Nashville, Tenn., has been appointed a captain in the National Guard, State of Tennessee, First Tennessee Infantry, and is now at the mobilization camp at Belle Meade (Camp Andrew Jackson).

George C. Randall, superintendent of transportation of the Colorado & Southern, Denver, Colo., received a commission as captain in the Quartermasters' Officers Reserve Corps on December 16, 1916, and expects to enter active service at Fort Sam Houston, San Antonio, Tex., within a few days.

OBITUARY

Manly T. Seymour, formerly superintendent of the Toledo division of the Hocking Valley, died at Marietta, Ohio, on May 15, at the age of 75.

Roscoe B. Kendig, chief mechanical engineer of the New York Central Railroad, with headquarters at Grand Central Terminal, New York, died suddenly on May 10, in Detroit, Mich., while attending a conference with officers of the Michigan Central Railroad. Mr. Kendig was born on March 3, 1868, at Renovo, Pa., and was educated in the public schools of his native town. He began railway work in 1884 as a messenger boy on the Pennsylvania Railroad. From May, 1885, to August, 1890, he served as machinist apprentice at Renovo, and then to January, 1893, as draftsman at the same place. He was then for seven years draftsman in the office of the superintendent of motive power of the same road, at Williamsport. On January 17, 1900, he was appointed chief draftsman of the Lake Shore & Michigan Southern at Cleveland, Ohio, and from March, 1904, to June, 1910, he was mechanical engineer of the same road. In June, 1910, he was appointed general mechanical engineer of the New York Central Lines, and in May, 1912, became chief mechanical engineer of the New York Central Railroad, as above noted.

R. B. Kendig

John Heath, formerly master mechanic on the Wisconsin division of the Chicago & North Western, died at his home in Winnetka, Ill., Thursday, May 1.

William Hooper Sheldon, formerly principal assistant engineer of the Chicago, Milwaukee & St. Paul, died at Milwaukee on May 3, at the age of 87 years. He entered the service of this road in 1869, and located and built many miles of lines for the St. Paul. He was in charge of the construction of bridges crossing the Mississippi river at La Crosse, Wis., and Sabula, Iowa. For a long time preceding his retirement a few years ago he was principal assistant engineer of the St. Paul.

Equipment and Supplies

LOCOMOTIVES

MISSISSIPPI & WESTERN.—See item under freight cars.

ITALIAN STATE RAILWAYS. See item in General News.

THE SOUTHERN RAILROAD is reported in the market for 25 Santa Fe locomotives.

THE NEW YORK CENTRAL is reported as inquiring for 255 locomotives for 1918 delivery.

THE NORTHERN PACIFIC has ordered 40 Mikado locomotives from the American Locomotive Company.

THE FUJI-MINOBU RAILWAY (Japan) has ordered four 2-6-2 type locomotives from the Baldwin Locomotive Works.

THE ANTOFAGASTA NITRATE COMPANY (Chile) has ordered two 2-6-2 type locomotives from the Baldwin Locomotive Works.

THE NASHVILLE, CHATTANOOGA & ST. LOUIS is reported as having ordered 10 Mikado locomotives from the Baldwin Locomotive Works.

THE CHICAGO, BURLINGTON & QUINCY, reported in the *Railway Age Gazette* of May 4 as inquiring for 65 locomotives, has ordered 25 light Mikado, 20 heavy Mikado, 10 Pacific and 10 Santa Fe type locomotives from the Baldwin Locomotive Works.

THE GREAT NORTHERN, reported in last week's issue as having ordered 25 eight-wheel switching locomotives from the Baldwin Locomotive Works, has placed an additional order with that company for 15 more eight-wheel switching locomotives and 85 Mikado locomotives.

FREIGHT CARS

THE WARNER-QUINLAN ASPHALT COMPANY is inquiring for 25 tank cars.

THE ILLINOIS CENTRAL has ordered 500 refrigerator cars from the Haskell & Barker Car Company.

THE ATCHISON, TOPEKA & SANTA FE has ordered 1,000 gondola cars from the American Car & Foundry Company.

THE MARK MANUFACTURING COMPANY, Evanston, Ill., has ordered 12 hopper cars from the Pressed Steel Car Company.

THE CANADIAN GOVERNMENT RAILWAYS have ordered 1,000 box cars from the Canadian Car & Foundry Company, and 1,000 from the Eastern Car Company.

THE MISSISSIPPI & WESTERN, C. W. Fouke, Texarkana, Ark., president, intends to buy a small number of freight cars and several locomotives in a few weeks.

THE NEW YORK CENTRAL, reported in last week's issue as inquiring for 1,000 gondola cars, may soon enter the market for 10,000 cars of wooden construction.

THE LOUISVILLE & NASHVILLE, now building 100 refrigerator cars in its own shops, as noted in these columns recently, has ordered Bohn Stationary Tanks for these cars from the White Enamel Refrigerator Company, St. Paul, Minn.

THE ATCHISON, TOPEKA & SANTA FE refrigerator cars, an order for 800 of which was recently placed with the American Car & Foundry Company, will be equipped with the Bohn Collapsible Tanks and Ventilators, manufactured by the White Enamel Refrigerator Company, St. Paul, Minn.

PASSENGER CARS

THE ILLINOIS CENTRAL has withdrawn its inquiry for 71 passenger cars.

THE DELAWARE, LACKAWANNA & WESTERN, reported in the *Railway Age Gazette* of April 27 as being in the market for 2 combination library, buffet, lounging and baggage cars, has ordered these cars from the Pullman Company.

Supply Trade News

McCord & Co., of Chicago, has moved its New York office from 50 Church street to 165 Broadway.

The Rife Engine Company, manufacturers of the Rife hydraulic ram, has removed its New York office from 111 Broadway to 90 West street.

John B. Carse, of the United States Steel Corporation, has been made chairman of the Purchasing Agents' Association of the subsidiary companies, with offices at 71 Broadway, New York.

F. H. Van Sweringen, formerly master car builder of the Streets Company and more recently superintendent of the Welland (Ont.) plant of the Canadian Steel Foundries, has been appointed Chicago representative of Brown & Co., Inc., Pittsburgh, Pa., makers of refined irons and steels.

The engineering firm of McHenry & Murray, of New Haven, Conn., has been dissolved, with the mutual consent of the partners. Mr. Murray will hereafter devote his entire time and attention to the interests of the Housatonic Power Company, of which he is the president, and Mr. McHenry will retire to private life.

E. L. Ruby, for the past year eastern representative for the Hayes Track Appliance Company, Richmond, Ind., has opened an office in the Real Estate Trust building, Philadelphia, Pa. In addition to Hayes derails he will handle the sale in eastern territory of the Keystone tool grinder made by the Keystone Grinder & Manufacturing Company, Pittsburgh, Pa.

Steel Corporation's Unfilled Orders

The United States Steel Corporation reported unfilled orders on hand April 30 amounting to 12,183,083 tons, an increase of 471,439 tons, compared with 11,711,644 tons on March 31, the previous record.

Unfilled tonage on February 28 was 11,576,697; on January 31, 11,474,054 tons; on December 31, 1916, 11,547,286 tons; and on April 30, 1916, 9,829,551 tons.

Steel orders now on the books are equivalent to almost 80 per cent of the corporation's annual capacity.

TRADE PUBLICATIONS

OFFSET BORING HEAD.—Catalogue F, recently issued by the Marvin & Casler Company, Canastota, N. Y., describes and illustrates the Caser offset boring head.

AUTOMATIC STOP.—The Train Control Appliance Company, 216 Martin building, El Paso, Tex., has published a 16-page pamphlet describing the Bulla automatic stop in its latest form.

VISES AND ANVILS.—The Columbian Hardware Company, Cleveland, Ohio, has recently issued a catalogue showing its line of vises and anvils. The booklet in its 36 pages contains illustrations of the vises, remarks as to the uses for which they are intended, and lists of sizes and prices.

FLUE WELDING APPARATUS.—The Draper Manufacturing Company, Port Huron, Mich., has recently issued a booklet descriptive of its pneumatic flue welder for scarfing, welding and swedging boiler tubes, its pneumatic tube welding machines for welding and swedging locomotive superheater tubes, its flue reclaiming attachments, and its ball finishing tools for repairing superheater units.

PROTECTIVE LIGHTING FOR INDUSTRIAL PLANTS is the subject of Bulletin 30 from the engineering department of the National Lamp Works of General Electric Company, Cleveland, Ohio. This publication is a valuable treatise on the correct selection and mounting of electric lights for protection of industrial property. The object of the bulletin, as stated by the authors, is to prevent the misspending of thousands of dollars because of incomplete knowledge on the subject of protective lighting.

Railway Construction

EL PASO & SOUTHWESTERN.—This company will erect a freight terminal building, 160 ft. by 990 ft., in El Paso, Tex. The structure will be one story high, of brick construction with concrete foundation, and will cost approximately $250,000. The building will be sub-divided so as to provide for an inbound freight house 60 ft. by 420 ft., an outbound freight house 30 ft. by 420 ft., an office 50 ft. by 132 ft., an agent's office 20 ft. by 30 ft., and a current record room 20 ft. by 60 ft. Contracts will be awarded in the near future.

ILLINOIS CENTRAL.—This company will make extensive improvements in its mechanical terminal at Clinton, Ill. A 23-stall roundhouse will be extended, and covered with a new roof, and new engine pits will be built, including a driver drop pit and a front truck drop pit. In addition to general renovation of the present facilities there will be a roundhouse foreman's office; a power house 40 ft. by 110 ft., with brick walls, steel roof trusses and tile roofs, concrete coal bin and 72-in. by 175-ft. reinforced concrete chimney; a 500-ton reinforced concrete coal chute; a brick sand drying house; and a standard wet sand bin. There will also be some increase to the mechanical equipment of the power plant. The entire cost of the improvements is estimated at $250,000.

KANSAS CITY, MEXICO & ORIENT.—This company, under its new management, plans to begin the construction of its long-delayed branch line from San Angelo, Tex., to Del Rio, a distance of approximately 120 miles. The grading for this extension has already been completed, and only the consent of the state of Texas remains to be obtained before rails will be laid. The branch to Del Rio will connect with the Southern Pacific. It is planned by the Mexican government to resume construction at an early date of the branch line of the National Railways of Mexico, which runs from Allende, Mexico, to Las Vacas, just opposite Del Rio. A bridge will be erected across the Rio Grande at the joint cost of the Kansas City, Mexico & Orient and the National Railways of Mexico, thus forming a new rail gateway between the United States and Mexico.

NEVADA RAILROADS.—The Nevada legislature has granted a franchise to Walter E. Trent, Reno, Nev., for the construction of a steam line from Ely, Nev., to Mina or Basalt, or to a convenient point on the Tonopah & Goldfield. This road is to serve principally a large smelter which is to be built in Tybo. The combined cost of the road and smelter will be approximately $4,000,000.

NEW YORK CENTRAL.—A contract has been given to John W. Cooper & Co., Buffalo, N. Y., for building an enginehouse with turntable and annex buildings, in the freight yards at Gardenville, N. Y. The work calls for putting up a structure 35 ft. high, 100 ft. wide and 500 ft. long, with concrete foundations, and brick and timber super-structure. The approximate cost of the work will be $150,000.

SOUTHERN RAILWAY.—Work will be begun at once on the construction of 26.2 miles of double track on the Cincinnati-Chattanooga line of the Southern Railway System. Contracts have already been let for grading between Moreland, Ky., and South Fork, 8.7 miles; Helenwood, Tenn., and Robbins, 6.4 miles, and Huffman and Lancing, 11.1 miles. The work between Huffman and Lancing will include the elimination of tunnel No. 17, 1,250 ft. long.

UNION PACIFIC.—This company has begun construction of the new combination freight and passenger depot recently destroyed by fire at Hordville, Neb. The new structure will be one story high, 24 ft. wide by 78 ft. long, and of frame construction. The company's forces will do this work.

WESTERN PACIFIC.—This company has taken over the Nevada, California & Oregon, and will appropriate $450,000 for improving the line from Reno, Nev., to Chilcoot, Cal. This work will be done by company forces.

Railway Financial News

CHICAGO, ROCK ISLAND & PACIFIC.—Stockholders have been summoned to a special meeting June 21 to vote on authorizing an increase in the capital stock from $75,000,000 to $140,000,000. All the new stock will be preferred, and $30,000,000 of it will be entitled to dividends at the rate of 7 per cent annually, and the remainder to dividends of 6 per cent annually. Shareholders will also be asked to amend the articles of consolidation by authorizing cumulative voting.

GULF, FLORIDA & ALABAMA.—The Federal Court at Pensacola has appointed F. E. Dewey, of Boston, operating receiver, and P. D. Beall, of Pensacola, co-receiver, of the property, in equity proceedings brought by creditors.

ILLINOIS CENTRAL.—See comments on the annual report for the calendar year 1916 elsewhere in this issue.

MISSOURI PACIFIC.—The Kansas Public Utilities Commission has authorized the Missouri Pacific to issue $98,273,942 first refunding and general mortgage bonds. Proceeds from the bonds will be used in the reorganization of the railroad. The authorization was held up by the commission until the reorganized company agreed to take over and operate the Madison branch, service on which it had planned to discontinue.

PITTSBURGH, FORT WAYNE & CHICAGO.—Henry Tatnall, vice-president in charge of finance of the Pennsylvania Railroad, has issued the following statement:

"There is no foundation for the statement that the corporate surplus of the Pittsburgh, Fort Wayne & Chicago is to be capitalized. No such step has even been in contemplation.

"While the details of the proposed changes in the security issues of the company have not as yet been fully worked out, it is possible to give a general idea of the proposal which is being formulated for submission to the stockholders.

"In the first place the primary purpose of the plan is simply to define more carefully the question of the relative rights of the holders of the two classes of stock at present outstanding, namely, the guaranteed special stock and the regular guaranteed stock. For this purpose it is proposed to convert these two issues, par for par, into two new issues to be known, respectively, as common and preferred, differing in no other particulars than these, from the present outstanding stock.

"There has always been a question as to the rights of the two classes of stockholders to participate in a fund of $1,300,000, which existed prior to the lease in 1869. It is proposed to settle this matter by first applying this fund to the payment of the expenses incident to the proposed change in the two issues of stock, as above outlined, and, second, by permitting the balance of the fund to be distributed to both classes of stockholders of the Pittsburgh, Fort Wayne & Chicago, other than the Pennsylvania Company and the Pennsylvania Railroad, these companies having waived their rights to participation therein.

"As soon as all details are finally arranged the entire plan will be submitted to the stockholders and their approval asked. A meeting will be called for this purpose at an early date, not as yet determined."

TIDEWATER & WESTERN.—Judge William A. Moneure in the Chancery Court of Richmond, Va., has appointed Langbourne M. Williams receiver of this road, which operates between Bermuda, Va., and Farmville, a distance of 93 miles.

ENGLISH CHANNEL TUNNEL PROJECT.—New York capitalists have made inquiries recently regarding the construction of a tunnel under the English Channel. The experience gained in driving the tunnels under the Hudson and East rivers would not be neglected in a venture such as has been proposed by statesmen of England and France. The latest advices from London are to the effect that the tunnel will surely be built after the war is over, but that it will not be practicable to begin this work at the present time. Estimates of the cost run from $80,000,000 to $100,000,000.

[ADVERTISEMENT.]

ANNUAL REPORT

ILLINOIS CENTRAL RAILROAD COMPANY—SIXTY-SEVENTH ANNUAL REPORT

REPORT OF THE BOARD OF DIRECTORS

To the Stockholders of the Illinois Central Railroad Company:

The Interstate Commerce Commission having issued an order under date of November 24, 1916, directing all common carriers to submit reports thereafter covering the period of twelve months ending December 31st, the Board of Directors concluded to change the fiscal year of your Company to conform therewith, and accordingly submit herewith a report of its operations and affairs for the year ended December 31, 1916:

The number of miles operated on June 30, 1916, was		4,766.93
On July 1, 1916, there was an increase in the mileage due to the relocation of junction point at Memphis Junction, Miss., of		.03
		4,766.96
Less: On July 1, 1916, decrease in mileage due to change of junction switch at Decatur, Ill	.22	
On October 15, 1916, track was abandoned and taken up at Tigertail, Tenn	.48	
Decrease in mileage due to various remeasurements	.07	.77
The number of miles operated on December 31, 1916, was		4,766.19
The average miles of road operated during the six months ended December 31, 1916, were		4,766.47
The average miles of road operated during the calendar year were		4,766.79

INCOME

There is submitted below the income account of your Company for the years ended December 31, 1916, and 1915.

In order to present a comparable statement for the two years, the non-operating income has been restated, as explained on the succeeding page.

	1916	1915	Increase+ Decrease—
Average miles operated during year	4,766.79	4,767.42	— 0.63
Railway operating revenues:			
Freight (including bridge tolls and miscellaneous freight)	$53,325,517.13	$45,992,467.55	+$7,333,049.58
Passenger (including bridge tolls and miscellaneous passenger)	14,435,403.96	12,864,700.77	+ 1,570,703.19
Mail	1,256,084.65	1,103,345.41	+ 152,739.24
Express	2,077,453.35	1,551,419.72	+ 526,033.63
Other passenger train	507,077.06	463,044.49	+ 44,032.57
Other transportation	905,909.53	868,321.19	+ 37,588.34
Incidental and joint facility	1,232,820.64	960,780.09	+ 272,040.55
Total railway operating revenues	73,740,266.32	63,804,079.22	+ 9,936,187.10
Railway operating expenses:			
Maintenance of way and structures	9,921,656.27	9,491,070.36	+ 430,585.91
Maintenance of equipment	16,980,995.16	14,970,410.38	+ 2,010,584.78
Traffic	1,303,244.08	1,232,749.18	+ 70,494.90
Transportation	22,553,003.57	21,446,631.76	+ 1,106,371.81
Miscellaneous operations	425,364.01	352,385.98	+ 72,978.03
General	1,848,339.22	1,713,794.62	+ 134,544.60
Transportation for investment—Cr.	Cr. *189,452.84*	Cr. *187,100.63*	— 2,352.21
Total railway operating expenses	52,843,149.47	49,019,941.65	+ 3,823,207.82
Net revenue from railway operations	20,897,116.85	14,784,137.57	+ 6,112,979.28
Railway tax accruals	4,116,065.26	3,268,938.38	+ 847,126.88
Uncollectible railway revenues	21,812.59	22,966.10	— 1,153.51
Railway operating income	16,759,239.00	11,492,233.09	+ 5,267,005.91
Nonoperating income	11,256,911.42	8,296,372.06	+ 2,960,539.36
Gross income	28,016,150.42	19,788,605.15	+ 8,227,545.27
Deductions from gross income	12,147,867.67	11,878,664.89	+ 269,202.78
Net income	15,868,282.75	7,909,940.26	+ 7,958,342.49
Disposition of net income:			
Income applied to sinking and other reserve funds	114,125.00	110,025.00	+ 4,100.00
Income appropriated for investment in physical property	46,664.72	46,027.77	+ 636.95
Total appropriations of income	160,789.72	156,052.77	+ 4,736.95
Income balance transferred to credit of profit and loss	15,707,493.03	7,753,887.49	+ 7,953,605.54

It has heretofore been the practice to take into account in the month of June each year the dividends on Dubuque & Sioux City Railroad Company Capital Stock and the interest on the Louisville, New Orleans & Texas Railway Company Second Mortgage Income Bonds owned by your company, such dividends and interest representing the surplus of the Dubuque & Sioux City Railroad Company and the Yazoo & Mississippi Valley Railroad Company, respectively, for the entire year. Provided such dividends and interest had been declared semi-annually instead of annually, the income of your company from these sources from July 1, 1914, to December 31, 1916, by six months periods would have been as follows:

Six months ended December 31, 1914	$1,142,196.90
" " " June 30, 1915	809,169.35
" " " December 31, 1915	1,758,919.29
" " " June 30, 1916	1,059,459.21
" " " December 31, 1916	2,790,290.00

In consequence of the change in the reporting year from June 30th to December 31st, the actual income account for the year ended December 31, 1916, as reflected by the Company's books and shown in Table No. 2, includes dividends and interest for the last three six months' periods, there having been taken into account in the month of June, 1916, dividends and interest for the full year ended June 30, 1916, and in the month of December, 1916, the income from the same source for the six months ended December 31, 1916. The income for the year ended December 31, 1915, as shown in the same table, likewise included the income for the year ended June 30, 1915, as shown by the first two items listed above.

In stating the comparable income account on the preceding page, the last two amounts were included in the nonoperating income for the year ended December 31, 1916, and the second and third items were similarly treated for the year ended December 31, 1915, thus making a correct comparable income statement which includes revenues, expenses, taxes, nonoperating income, and deductions from income for one year for each of the two years.

REVENUES

The operating revenues during the current year aggregated $73,740,266.32, as compared with $63,804,079.22 in the preceding year, an increase of $9,936,187.10, or 15.57 per cent.

Freight revenue, including bridge tolls and miscellaneous freight, yielded $53,325,517,13, an increase over the previous year of $7,333,049.58, or 15.94 per cent. Practically all classes of freight contributed to this increase in business. The more marked increases were in bituminous coal and lumber. There was a substantial increase in the freight revenue on the northern and southern lines of the Company. The western lines showed only a moderate increase in revenue.

Revenue from the transportation of passengers, including bridge tolls and miscellaneous passenger, amounted to $14,435,403.96, being $1,570,703.19, or 12.21 per cent in excess of the preceding year. All portions of the system participated in this increase although, as in the case of freight revenue, the western lines participated in the increase to a moderate extent only.

Information with reference to statistics of freight and passenger traffic will be found in Table No. 12.

EXPENSES

The operating expenses amounted to $52,843,149.47 this year, as compared with $49,019,941.65 last year, an increase of $3,823,207.82, or 7.80 per cent.

MAINTENANCE OF WAY AND STRUCTURES

Maintenance of way and structure expenses amounted to $9,921,656.27, being an increase over the previous year of $430,585.91, or 4.54 per cent. The increase was largely due to greater outlays for maintenance of station, office and shop buildings, fuel and water plants, and expenditures incident to the replacement of steel bridges with masonry structures between 63rd and 67th Streets, Chicago. Other factors contributing to the increase in expenses were increased rates of wages paid section men and increased cost of material used in maintenance of way and structure work.

The following are some of the more important renewals made during the six months ended December 31, 1916, the cost of which was charged to operating expenses:

1,060,806 cross ties were renewed, being equivalent to 342.10 miles of continuous track, or 4.55 per cent of all ties in track, including sidings.

14.04 miles of track were relaid with new steel and 4.64 miles with second hand steel rail, replacing rail of the same weight.

4,875 lineal feet of pile and timber bridges were replaced by embankments.

547 lineal feet of iron and 990 feet of concrete pipe culverts were installed.

404 miles of ballasted track were repaired or renewed to restore the track to its original standard.

Data relating to work, the cost of which was charged wholly or in part to "Road and Equipment," will be found on page 10 of this report, under the caption "Physical Changes."

MAINTENANCE OF EQUIPMENT

The expenditures for maintenance of equipment amounted to $16,980,995.16, being $2,010,584.78, or 13.43 per cent in excess of the previous year. The increase is due in part to the large increase in cost of making repairs, and in part to heavier charges for depreciation and retirements of freight-train cars. Important elements in the increased cost of repairs were increased rates of wages paid shopmen, and substantial advances in prices paid for practically all material entering into equipment repairs.

Depreciation charges for equipment were $2,974,901.29 this year, an increase over last year of $769,689.65.

During the six months ended December 31, 1916, 92 engines received general repairs and 207 received thorough repairs. During the same period 56 passenger-train cars were given heavy repairs and 269 were given medium repairs.

The average mileage per serviceable locomotive for the year was 29,081 miles. The average age of locomotives was 12.25 years, of revenue freight-train cars 9.68 years, and of passenger-train cars 14.70 years.

TRAFFIC EXPENSES

Traffic expenses amounted to $1,303,244.08, an increase for the year of $70,494.90, or 5.72 per cent.

TRANSPORTATION EXPENSES

Transportation expenses were $22,553,003.57, an increase of $1,106,371.81, or 5.16 per cent. Additional benefits have been secured from the use of superheated locomotives of greater tractive power, resulting in a substantial increase in the train load. Increases in wages were granted various classes of employes in the transportation department, and the price paid for fuel and other supplies substantially increased.

MISCELLANEOUS OPERATIONS

Expenses for miscellaneous operations amounted to $425,364.01, being an increase of $72,978.03, or 20.71 per cent.

GENERAL EXPENSES

General expenses amounted to $1,848,339.22, an increase of $134,544.60, or 7.85 per cent. The greater portion of this increase was due to expenditures in connection with the valuation of the Company's physical property being made in accordance with the requirements of an Act of Congress providing for the physical valuation of railroads.

TAXES

The amount of taxes for the year was $4,116,065.26, an increase of $847,126.88, or 25.91 per cent. There was a substantial increase in the amount of the charter tax paid the State of Illinois on account of increased gross receipts on the charter line. Taxes on non-charter and leased lines in practically all states were materially greater, due in some instances to increased levy rates and assessments, and in other cases to increased gross receipts. There was also a marked increase in the amount of federal income tax, due to the Act of Congress, approved September 8, 1916, providing for an increase in the amount of the tax on corporations from one per cent to two per cent of the surplus for the year, and also to the increased amount of the surplus taxable.

FINANCIAL

The general balance sheet, Table No. 4, reflects the financial condition of the Company on December 31, 1916, as compared with June 30, 1916.

The comments which follow with reference to Capital Stock and Funded Debt, Securities Owned, Insurance and Other Funds, Road and Equipment, and Physical Changes, are confined to the changes that have taken place during the six months ended December 31, 1916.

CAPITAL STOCK AND FUNDED DEBT

There were no changes in the Capital Stock.

Under the terms of the mortgage, $2,000,000.00 Illinois Central Railroad

Company First Lien Equipment Bonds were delivered to the Trustee and cancelled. There were also surrendered to the Trustee for cancellation $240,000.00 of these bonds in connection with the retirement of equipment covered by the mortgage.

There were retired and cancelled under the terms of the respective Trust Agreements Illinois Central Equipment Trust Certificates, Series "A," $400,000.00; Series "B," $175,000.00; Series "C," $99,000.00; and Series "D," $95,000.00.

SECURITIES OWNED

The Yazoo & Mississippi Valley Railroad Company, in liquidation of indebtedness for improvements made to its property, issued and turned over to this Company $174,000.00 of its Five Per Cent Gold Improvement Bonds.

There was received from the Dubuque & Sioux City Railroad Company $2,521,116.18 of that Company's Four Per Cent Debenture Bonds, in payment for advances made to that Company from time to time for additions and betterments to its property.

$16,500.00 Iowa Falls & Sioux City Railroad Company Seven Per Cent Bonds, maturing in 1917, were purchased.

$35,000.00 of Chicago, St. Louis & New Orleans Railroad Company Equipment Trust Certificates, Series "A," owned by the Company matured and were redeemed.

The Peoria & Pekin Union Railway Company redeemed $12,500.00 par value of its Five Per Cent Debenture Bonds maturing August 1, 1916.

$53,000.00 par value of The Yazoo & Mississippi Valley Railroad Company Five Per Cent Gold Improvement Bonds were transferred to the Insurance Fund, and $29,000.00 par value were sold.

ROAD AND EQUIPMENT

There was expended during the six months ended December 31, 1916, for Road and Equipment (including improvements on leased and subsidiary companies' properties) $4,417,471.82.

The following is a classified statement of these expenditures:

	Additions and Betterments on Owned Lines	Improvements on Leased Railway Property	Advances for Additions and Betterments to Lines of Subsidiary Companies
ROAD:			
Engineering	$ 40,606.07	$ 930.41	$ 19,422.32
Land for transportation purposes	112,265.08	6,952.12	Cr. *7,531.18*
Grading	175,106.69	2,777.38	77,348.21
Tunnels and subways	20,746.69	.....	.....
Bridges, trestles and culverts	149,982.92	46.70	179,074.48
Ties	58,588.62	1,318.25	37,601.98
Rails	111,007.74	2,662.63	123,486.72
Other track material	108,001.52	559.20	123,360.92
Ballast	66,574.12	753.41	19,720.54
Track laying and surfacing	120,495.74	2,374.08	72,453.65
Right of way fences	5,373.15	224.31	6,815.18
Snow and sand fences and snowsheds	8.57	.....	123.95
Crossings and signs	51,008.15	14,371.92	18,610.77
Station and office buildings	422,233.57	1,841.68	40,745.79
Roadway buildings	6,882.91	.....	17,967.06
Water stations	45,170.37	.....	47,540.88
Fuel stations	17,632.17	.....	3,480.22
Shops and enginehouses	121,918.82	.....	100,550.66
Grain elevators	1,662.09	.....	11,700.11
Wharves and docks	23.28	.....	2,623.79
Telegraph and telephone lines	8,843.66	276.56	1,683.25
Signals and interlockers	17,862.34	382.16	237,984.38
Power plant buildings	163.69	.....	4,898.96
Power transmission systems	16.10	.....	.....
Power distribution systems	1,141.45	.....	.....
Power line poles and fixtures	78.30	.....	.....
Miscellaneous structures	Cr. *1,333.38*	.....	40.05
Paving	12,603.76	.....	Cr. *585.35*
Roadway machines	167.47	.....	7,100.21
Roadway small tools	.....	.....	2,006.90
Assessments for public improvements	28,163.58	Cr. *641.89*	34,606.13
Other expenditures—Road	45,877.78	444.50	49,425.06
Shop machinery	3,724.28	.....	47,496.59
Power plant machinery	1,046.86	.....	8,112.39
	Covered by Equipment Trust Series "D"		
EQUIPMENT:			
Steam locomotives	$ 43,799.39	$563,748.07	..... } $284,825.83
Freight train cars	Cr. *19,871.01*	Cr. *491,983.03*	.....
Passenger train cars	.....	936,028.41	....
Work equipment	.....	24,241.19	....
GENERAL:			
Organization expenses	.....	.....	Cr. *120.04* .....
Law	.....	20.81	....
	$ 23,928.38	$ 2,785,699.61	$ 35,153.38 $ 1,572,690.45

The following shows the amount advanced during the six months ended December 31, 1916, to each of the subsidiary companies, these amounts being included in total advances shown in Table No. 6 of this report:

Chicago, St. Louis & New Orleans R. R.	$1,222,487.43
Canton, Aberdeen & Nashville R. R.	33,263.49
Dubuque & Sioux City R. R.	316,683.95
Batesville Southwestern R. R.	Cr. *57.40*
Bloomington Southern R. R.	312.98
Total	$1,572,690.45

PHYSICAL CHANGES

The following is a summary of the more important improvements, the cost of which was charged wholly or in part to Road and Equipment, during the six months ended December 31, 1916.

ROADWAY AND STRUCTURES:

There were 135.15 miles of track laid with 90-pound new steel rail, and 39.88 miles of track relaid with second-hand steel rail, all of which replaced rail of lighter pattern.

Thirty-three new industrial sidings were built or extended, resulting in a net addition of 2.21 miles, after allowing for industrial tracks taken up.

One hundred and twenty-one new Company sidings were built or extended, a net addition for the six months period of 40.02 miles. Included in these sidings were additions to freight yard facilities of 6.86 miles of track at Centralia, Ill., 5.16 miles at Clinton, Ill., 1.68 miles at Freeport, Ill., 2.13 miles at Nonconnah Yard, Tenn., 1.55 miles at Jackson, Miss., and 2.85 miles at McComb, Miss.

The elevation of tracks through Cicero, Ill., was completed. Grade crossing elimination work between 79th and 116th Streets, Chicago, Ill., and the elevation of tracks at Indianapolis, Ind., are in progress.

For the purpose of grade reduction and elimination of curves the construction of a cut-off on the Effingham District between Effingham, Ill., and Evers, Ill., 4.15 miles in length, and involving the abandonment of 4.36 miles of the present main track, was undertaken and nearly completed at the close of the year.

Bridges on the Mattoon District were strengthened so as to permit the use of heavier engines on this line. The renewal of bridges over street crossings between 63rd and 67th Streets, Chicago, Ill., is in progress.

The lining of the Peterson Tunnel at Unionville, Ind., was commenced during the period.

The work of installing electric interlocking plants is in progress at Pullman Junction, Ill., and Rockport, Ky.

The construction of a subway at College Avenue, Bloomington, Ind., was commenced.

A new office and depot building at 63rd Street, Chicago, Ill., is being constructed. The construction of a new passenger station at Mattoon, Ill., was commenced. A new station building at Nashua, Ia., was constructed, and station buildings were enlarged at Palestine, Ill., Rockford, Ill., Cecilia, Ky., Ripley, Tenn., and Wesson, Miss. Combination passenger and freight stations were constructed at Raleigh, Ill., and Argyle, Wis. A new freight house was constructed at East St. Louis, Ill., and extensions made to the existing freight houses at Freeport, Ill., and Dubuque, Iowa.

Water stations were improved at Christopher, Ill., Herrin, Ill., Pekin, Ill., Ullin, Ill., Fordham Yard, Chicago, Ill., Jackson, Tenn., Dawson Springs, Ky., Hernando, Miss., Durant, Miss., and Stuyvesant Docks, New Orleans, La.

New 100,000 gallon steel water tanks were erected at Assumption, Ill., Hawthorne, Ill., Carbondale, Ill., Champaign, Ill., Bloomington, Ill., Louisville, Ky., and Kentwood, La. The erection of a new 150,000 gallon steel tank at Matteson, Ill., and of 100,000 gallon tanks at Kankakee, Ill., Mt. Pulaski, Ill., and Webster City, Ia., was commenced. A new 50,000 gallon wooden tank was erected at West, Miss., and a second-hand wooden tank of 100,000 gallon capacity installed at Winona, Miss.

New coaling plants were constructed at Assumption, Ill., Hart, Ill., Waterloo, Ia., and Cecilia, Ky., and the construction of a new plant at Effingham, Ill., was undertaken and practically completed at the close of the period.

The construction of new mechanical facilities at Louisville, Ky., consisting of a round house, office building, machine shop, power house, paint shop and turntable, was begun. Extensive improvements were made to the mechanical facilities at Burnside Shops and 27th Street, Chicago, Ill., and at Central City, Ky.

A new 85-foot turntable was installed at East St. Louis, Ill., and second-hand turntables were installed at Onawa, Ia., LeRoy, Ill., and Golconda, Ill., replacing worn out turntables of light and obsolete design.

The installation of block signals at Unionville, Ind., was completed. The block signal work between Munger and Coleman, Ill., is in progress. Block signals are being installed at various points on the Mississippi and Louisiana Divisions, and, upon completion of the work, the line between Chicago, Ill., and New Orleans, La., will be completely block signalled. During the past six months there were added 143.5 track miles of automatic block signals, which, with the trackage previously equipped, makes a total of 1,700 miles of protected track at the close of the year.

6,300 lineal feet of permanent bridges and trestles were constructed, replacing pile and timber bridges, trestles and embankments.

312 lineal feet of permanent bridges and trestles, and 13,582 lineal feet of pile and timber bridges and trestles, were rebuilt or replaced by embankments.

24 miles of track were ballasted or reballasted and brought up to present standard.

EQUIPMENT:

Twenty Pacific type passenger engines were added during the past six months. Two locomotives were retired, resulting in an increase of eighteen locomotives for the period, and an increase of 785,547 pounds in tractive power. Two Pacific and one Atlantic type passenger engines were converted into superheated engines.

Fifty-two new passenger-train cars were added, and eighty-one refrigerator cars were equipped with passenger trucks and transferred from freight to passenger equipment classification, making a total of one hundred and thirty-three cars added during the six months ended December 31st. Three postal cars heretofore reported as owned jointly, three mail and express cars, and two old coaches in mixed train service, were retired from the equipment list, resulting in a net increase of one hundred and twenty-five passenger-train cars.

Three hundred new freight-train cars were added, and six hundred and nineteen were sold, destroyed or transferred to other service, making a net decrease of three hundred and nineteen cars during the six months period.

Three thousand, four hundred and ninety-four cars were rebuilt during the six months period. The average capacity of cars owned on December 31st was 41.76 tons, as compared with 41.69 tons on June 30th, and the total capacity of cars was 2,559,290 tons as against 2,567,570 tons.

GENERAL REMARKS

As a result of the increased activity in practically all lines of business, the traffic of your Company surpassed in volume that of any previous like period in its history. These unusual conditions were not only reflected in the increased revenues of the Company during the year, but also affected the expenses adversely in that the prices of practically all material entering into the maintenance and operation of your properties were greatly increased. There was also a substantial increase in the amounts paid for taxes this year, as compared with the previous year.

The policy followed in recent years of steadily improving the standard of your road and equipment enabled the management to take care of the largely increased traffic more successfully and with greater economy than would otherwise have been possible. As an illustration of the increased efficiency due to the introduction of more powerful equipment and the improvement of the roadbed, it will be noted in Table No. 12, "General Traffic Results," that the average tons of all freight carried per revenue freight train mile has increased from 459.75 to for the year ended December 31, 1912, to 624.43 tons for the year ended December 31, 1916, each intervening year showing a steady improvement over its predecessor.

On December 31, 1916, the number of stockholders, as shown by the books of the Company, was 10,025 as compared with 10,697 on June 30, 1916.

The number of pensioners on the pay rolls at the close of the year was 543, and the amount of pensions paid during the year was $145,999.84, an increase of $8,822.22 as compared with last year.

It affords the Board pleasure to express its appreciation to the officers and employes for their loyal and efficient service during the past year.

By order of the Board of Directors.

C. H. MARKHAM,
President.